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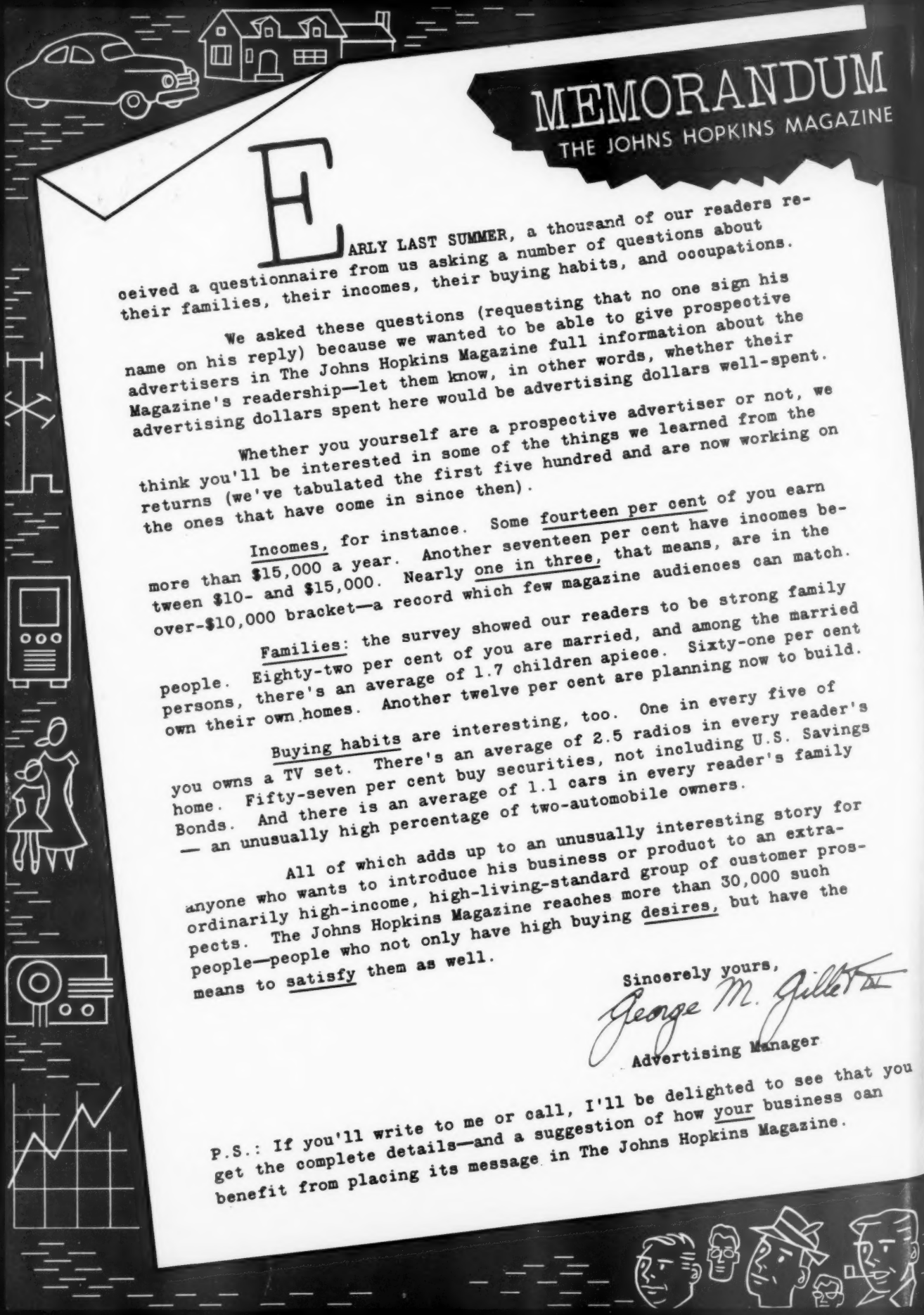
THE Johns Hopkins MAGAZINE

October 1950

SEE PAGE 1



MEMORANDUM

THE JOHNS HOPKINS MAGAZINE

EARLY LAST SUMMER, a thousand of our readers received a questionnaire from us asking a number of questions about their families, their incomes, their buying habits, and occupations.

We asked these questions (requesting that no one sign his name on his reply) because we wanted to be able to give prospective advertisers in The Johns Hopkins Magazine full information about the Magazine's readership—let them know, in other words, whether their advertising dollars spent here would be advertising dollars well-spent.

Whether you yourself are a prospective advertiser or not, we think you'll be interested in some of the things we learned from the returns (we've tabulated the first five hundred and are now working on the ones that have come in since then).

Incomes, for instance. Some fourteen per cent of you earn more than $15,000 a year. Another seventeen per cent have incomes between $10- and $15,000. Nearly one in three, that means, are in the over-$10,000 bracket—a record which few magazine audiences can match.

Families: the survey showed our readers to be strong family people. Eighty-two per cent of you are married, and among the married persons, there's an average of 1.7 children apiece. Sixty-one per cent own their own homes. Another twelve per cent are planning now to build.

Buying habits are interesting, too. One in every five of you owns a TV set. There's an average of 2.5 radios in every reader's home. Fifty-seven per cent buy securities, not including U.S. Savings Bonds. And there is an average of 1.1 cars in every reader's family — an unusually high percentage of two-automobile owners.

All of which adds up to an unusually interesting story for anyone who wants to introduce his business or product to an extraordinarily high-income, high-living-standard group of customer prospects. The Johns Hopkins Magazine reaches more than 30,000 such people—people who not only have high buying desires, but have the means to satisfy them as well.

Sincerely yours,

George M. Gillet Jr.

Advertising Manager

P.S.: If you'll write to me or call, I'll be delighted to see that you get the complete details—and a suggestion of how your business can benefit from placing its message in The Johns Hopkins Magazine.

THE Johns Hopkins MAGAZINE

VOLUME II October, 1950 NUMBER 1

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The Cover

The tiny lady who on this month's cover is so intently studying how Dr. Miriam D. Pauls of the Hopkins Hearing and Speech Center forms words is Miss Liz Wiseman. Liz is profoundly deaf. For her inspiring story, meet Liz again on Page 9.

Photo by Robert M. Mottar

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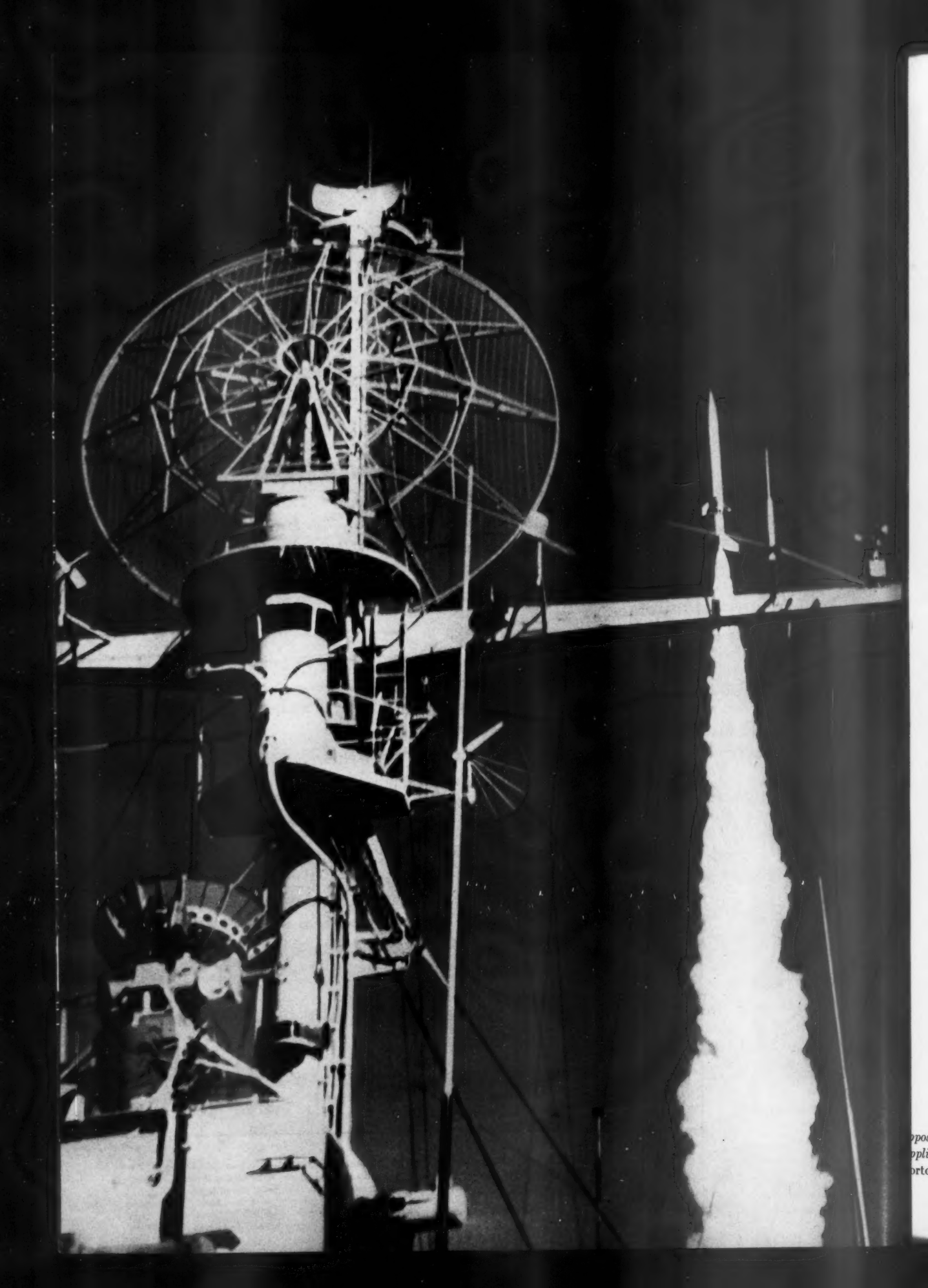


The Rockets Report

From seventy and more miles above the earth, they are sending back information about the mysterious upper air which excites even the adventurous scientists who send them on their way.

By JAMES A. VAN ALLEN

TO THOSE who are using rockets to carry experimental apparatus into the thin upper atmosphere, the cryptic term "X-minus-zero" has a deep significance. "X-time" is the instant at which the rocket is launched.

The experiment may have been conceived and outlined in general form at X-minus-two years. At X-minus-two months the flight apparatus was completed and given preliminary tests. At X-minus-one month all tests and calibrations were completed. All rocket-borne equipment, tools, circuit diagrams, drawings, notebooks, and accessory test instruments were packed and shipped to the proving ground or ship from which the rocket is to be fired. The last few days before firing were dedicated to the check-off list: tightening and checking each bolt and nut; verifying the operation of each circuit, motor, and switch; pampering the power supply; and finally making the last over-all preflight test.

At X-minus-zero the rocket, with all its precious contents, leaves the launcher. This is the culmination of weeks and months of preparation. If any small detail of the rocket vehicle or of the instrumentation fails, the participants can only shrug—and hope to try again in six months or a year.

But if the flight is successful, a new chapter in the physics of the upper atmosphere may be opened. A long-standing hypothesis may be verified or disproved. Or a new phenomenon may be observed.

Rocket experimentation appeals to the most adventuresome of physicists. It is not for those who feel that each month should have its own reward of work completed and laid aside.

LONG BEFORE the development of high-altitude rockets, a great body of scientific knowledge of the nature of the upper atmosphere had been accumulated. (Since altitudes up to about twenty miles have been accessible to direct observation with free balloons for some years, the term "upper atmosphere" is herein taken to mean that portion of the atmosphere above twenty miles.) Even at an altitude of twenty miles, the air density has fallen off to about one one-hundredth of its value at sea level; at one hundred miles, to less than one part in a hundred million. Thus, at a hundred miles altitude the atmosphere is what is known in the laboratory as a "hard vacuum."

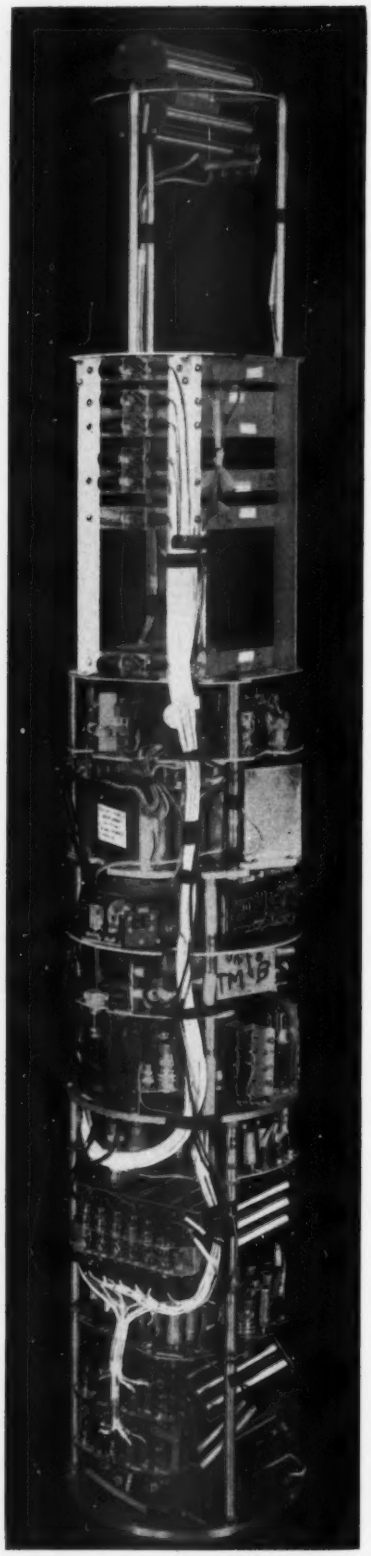
Yet phenomena of the most fantastic extent and importance occur in the upper atmosphere. For example, all radio communications over distances of about thirty miles are possible only because of the existence of certain ionized layers of rarefied air above sixty miles. These ionized layers act as huge mirrors for the reflection of radio waves.

DR. VAN ALLEN is a member of the staff of the Johns Hopkins University Applied Physics Laboratory. The APL work reported in his article has been supported by the U. S. Navy Bureau of Ordnance under Contract NOrd 7386.

Literally billions of dollars' worth of physical equipment would be required to provide an equivalent man-made communication facility for the continents, for the seas, and for the airways if these layers did not exist.

In spite of the extensive present-day knowledge of atomic physics, many of the atomic phenomena of the upper atmosphere have never been reproduced in the laboratory. The most important single reason for this fact is the difficulty of confining a quantity of rarefied

pposite—An Aerobee rocket, developed and launched under direction of Johns Hopkins' pplied Physics Laboratory, whooshes skyward above the Central Pacific from the U.S.S. rton Sound. (*Photo from U. S. Navy*)



Johns Hopkins—APL

AEROBEE ROCKETS are packed full of apparatus for exploring upper atmosphere. Above is a typical set of cosmic-ray and magnetometer instruments built at Hopkins.

gas in a sufficiently large container to avoid the inhibiting effects of molecular collisions with the walls. The upper layers of the atmosphere enjoy a complete absence of solid physical bounds.

The study of the upper atmosphere is thus properly a branch of geophysics. The observed phenomena can be correlated with and at least partially understood in terms of "laboratory science," both experimental and theoretical; yet their occurrence is uniquely associated with the earth's atmosphere as it actually exists and as it is actually exposed to radiations from the sun and from other extraterrestrial bodies.

Most of our knowledge of the upper atmosphere has come from systematic studies and observations of an indirect character. These studies have been possible only by virtue of what may be termed the "general transparency" of the atmosphere. Thus, the atmosphere is reasonably transparent to sound, to a considerable range of radio frequencies, to many regions of the optical spectrum. Yet no such transparency exists in respect to cosmic rays, for example. The cosmic-ray effects observed at sea level or even at mountain altitudes are due to the remote progeny of the primary radiation which is incident on the top of the atmosphere.

Present-day rockets enable experimentalists to make far more direct physical observations in the upper atmosphere than have heretofore been possible. A number of significant results have already been achieved during the past four years.

BEFORE 1946 there was no direct knowledge of the intensity or detailed structure of the sun's spectrum to wave lengths shorter than about 2900 Angstrom units. The spectrum, as observed in even the highest-altitude balloon flights (about 100,000 feet) showed a sharp and apparently unnatural termination at this point.

But on the basis of the very high apparent temperature of the sun, it seemed reasonably certain that there should be copious radiation in the ultraviolet region. Thus, it appeared that whatever radiation of this type fell on top of the atmosphere was being completely absorbed in the thin air above 100,000 feet.

It was reasoned that this very absorption was the basis for the generation and maintenance of the ionized layers (ionosphere) of the atmosphere, of the ozonosphere, of the luminous glow

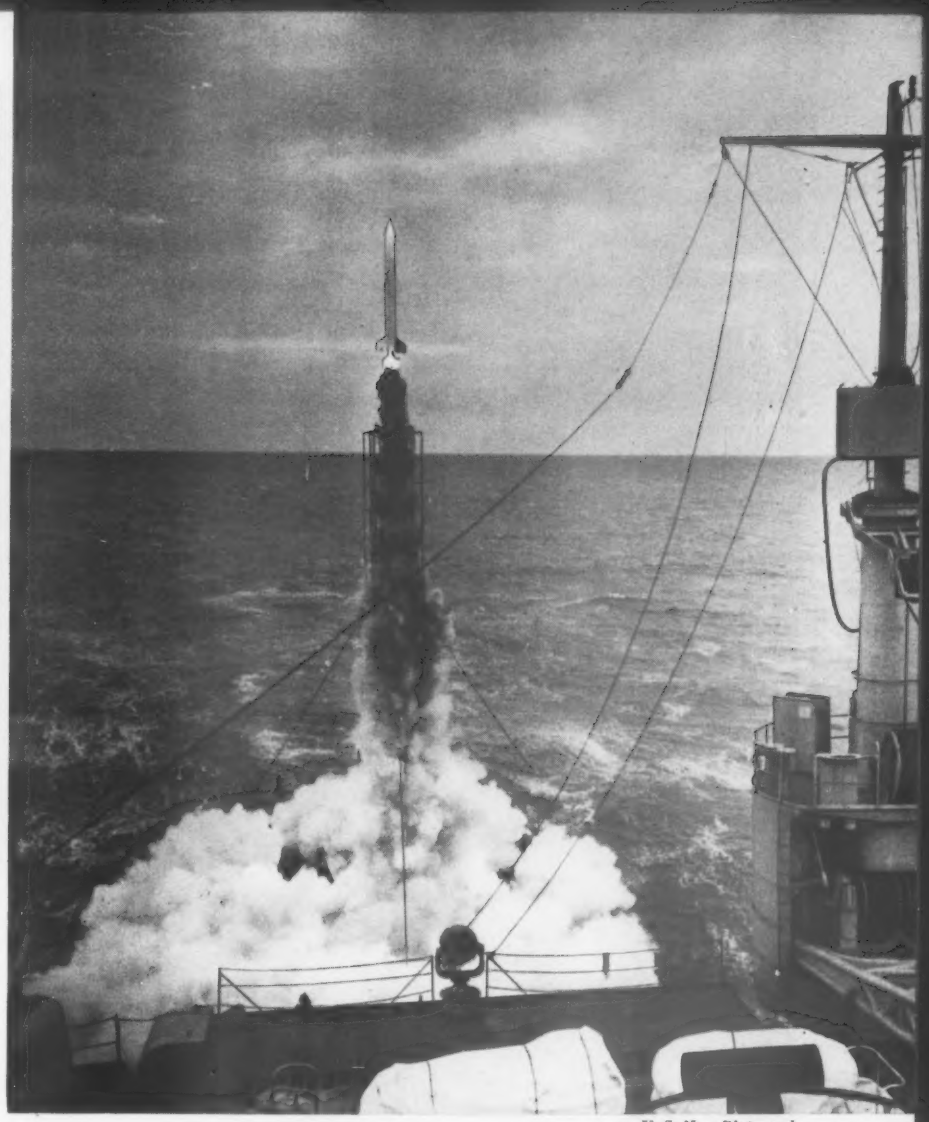
of the sky, and of many other of the atomic phenomena in the atmosphere. Other more subtle and detailed features of these phenomena also required exciting radiation of short ultraviolet or X-ray wave lengths.

By the use of Aerobee and V-2 rockets, this fundamental aspect of the physics of the upper atmosphere is being clarified in a definitive way.

During 1946 and 1947, several spectrographs were flown in V-2 rockets by the Applied Physics Laboratory of the Johns Hopkins University and by the Naval Research Laboratory. The hearts of all of these instruments were concave diffraction gratings, ruled by the Johns Hopkins physics department [a description of them and an illustration of their placement in a V-2 appeared in *The Johns Hopkins Magazine* last June]. As a result, there is at last available to scientific workers a greatly extended knowledge of the intensity and detailed features of the sun's ultraviolet spectrum. The quality of the spectra obtained at high altitudes does not equal that obtained by massive laboratory instruments. But it is quite sufficient to delineate the principal features.

Extension of the spectrum farther into the ultraviolet and X-ray regions continues to be a fruitful field of in-

S. F. Singer



U. S. Navy Photograph

ROCKETS LAUNCHED from ships at sea have gathered valuable information for investigators at Hopkins' Applied Physics Laboratory. Above is the U. S. S. *Norton Sound*, ready for a rocket-firing in the Pacific. An Aerobee rocket is in launching tower on the afterdeck. Right, an Aerobee leaves the launching tower at a firing in the Gulf of Alaska this year. The smoke is mainly from the rocket's booster.

vestigation. Rockets are the only vehicles of sufficient altitude capability to be of value in this work. It is likely that extension of the solar spectrum will prove to have been one of the foremost achievements of rocket-borne equipment in the present era.

THE ATMOSPHERE has been referred to as a huge atomic-physics laboratory. It is no less a huge nuclear-physics laboratory. But it is scarcely proper to term it a laboratory in the usual sense. For the conditions of the experiments are not subject to human regulation. In general, the most that man can do is to *observe* what happens under the various circumstances which occur naturally.

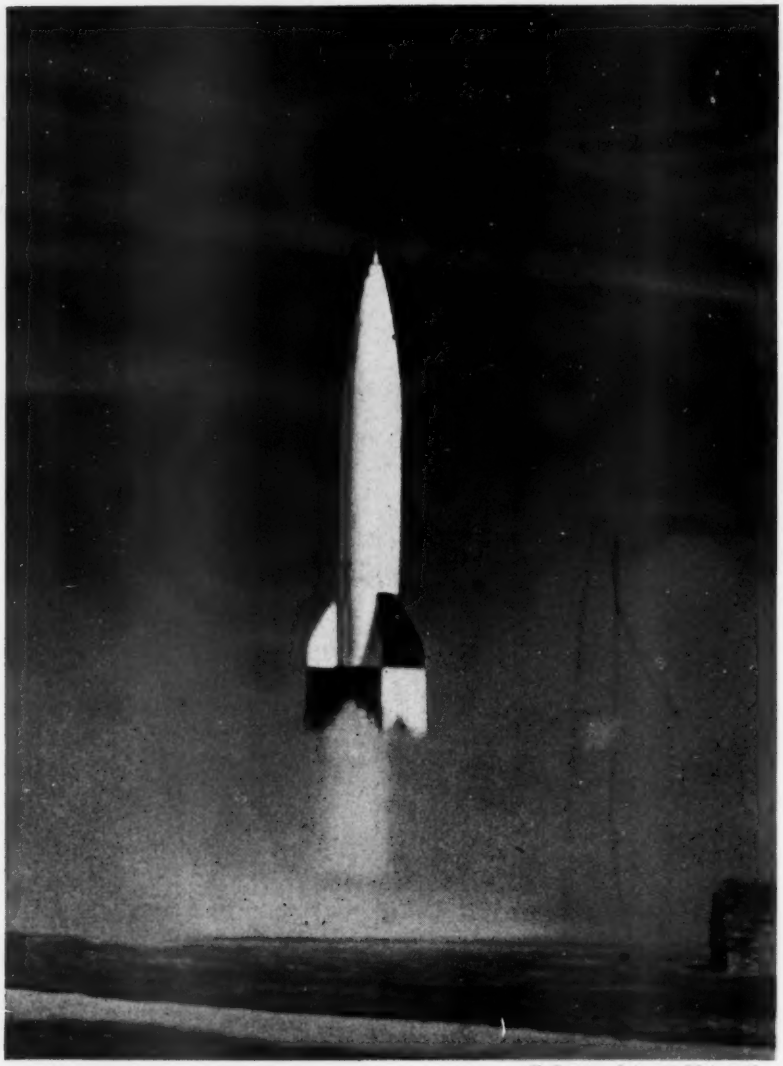
The incidence of cosmic rays on the atmosphere provides a rich field for nuclear-physics observations. Cosmic rays have traditionally provided the most advanced outpost in nuclear physics. By reason of the altitude limitation of the common techniques for studying cosmic rays, most studies have been restricted to the secondaries which are generated by the primary radiation in the high atmosphere.

Again, rockets provide a method of placing apparatus into direct contact with the primary radiation. The major effort of the Applied Physics Laboratory's High Altitude Group has been in the measurement of the intensity of the primary radiation above the appreciable atmosphere in various directions and at various latitudes; and in the investigation of the nature of the nuclear reactions produced by the first impact of the radiation on solid matter.

The effective "top of the atmosphere" for cosmic-ray purposes has been found experimentally to be at an altitude of thirty miles. The top of the atmosphere is here defined as the altitude above which there is no further change in density. (The particular altitude found is specific to cosmic rays. It should be understood that there is a different effective ceiling to the atmosphere for each type of radiation under consideration. For many types of radiation the ceiling is much higher; for others it is much lower.)

Above this altitude, the primary intensity has been measured at four latitudes, ranging from the geomagnetic equator off the coast of Peru to the Gulf of Alaska. The importance of measurements at different latitudes stems from the action of the earth's magnetic field in analyzing charged radiation in accordance with its momentum or energy.

From this series of APL rocket



U. S. Army Ordnance Photograph

CAPTURED GERMAN V-2's have been valuable gatherers of data from atmosphere high above the earth. Fifty-four have been fired from the Army's White Sands Proving Ground in New Mexico, with upper-atmosphere equipment the primary payload. APL has had nine V-2's. Since 1947, the Aerobee, sponsored by APL, has become progressively more important for this work. It can carry 150 useful pounds seventy miles up. Above, a V-2 leaves the ground.

measurements, the primary cosmic-ray energy spectrum has been determined experimentally for the first time over the energy range of greatest importance in atmospheric cosmic-ray phenomena.

The magnitude and sign of the charge has been determined in the same series. Finally, a number of experiments on the reactions of the primaries in matter have added significantly to the knowledge of high-energy nuclear processes.

Even the multimillion-dollar nuclear accelerators now under construction at Brookhaven and Berkeley will generate particles equivalent only to low-energy cosmic rays.

CAPTURED GERMAN V-2 rockets have played an extremely important part in forwarding the upper-atmosphere research objectives of various laboratories since the war. Fifty-four V-2's have been fired at the Army's White Sands Proving Ground in New Mexico, with upper-atmosphere equipment as the primary payload. Of these, the Applied Physics Laboratory has had nine.

Since the fall of 1947, a new American rocket has become progressively more important as a vehicle for this work. This is the Aerobee, sponsored by the APL and developed by the Aerojet Engineering Corporation and Douglas Aircraft Company under APL's technical supervision.

The Aerobee carries 150 pounds of useful payload to over seventy miles altitude. It embodies the utmost in simplicity, economy, and reliability that the rocket art offers at the present time. More than a hundred Aerobees have been purchased by all branches of the service. About a third of them, at the

FROM A V-2 SIXTY MILES UP, Johns Hopkins scientists obtained this startling photo of earth's curvature. It shows about 300,000 square miles of earth's surface. The camera is seven hundred miles from horizon; distance along the horizon is 2,700 miles. These places are visible, identified by numbers on picture: Mexico (1), Gulf of California (2), Lordsburg, New Mexico (3), Peloncillo Moun-

date of this writing, have been fired.

Because of the extensive and complex handling facilities required for firing the V-2, all upper-atmosphere V-2 flights have been made from White Sands. As pointed out in the discussion of cosmic-ray studies, it is of the utmost importance to extend certain types of measurements to other latitudes.

The Aerobee has made such comprehensive programs readily feasible.

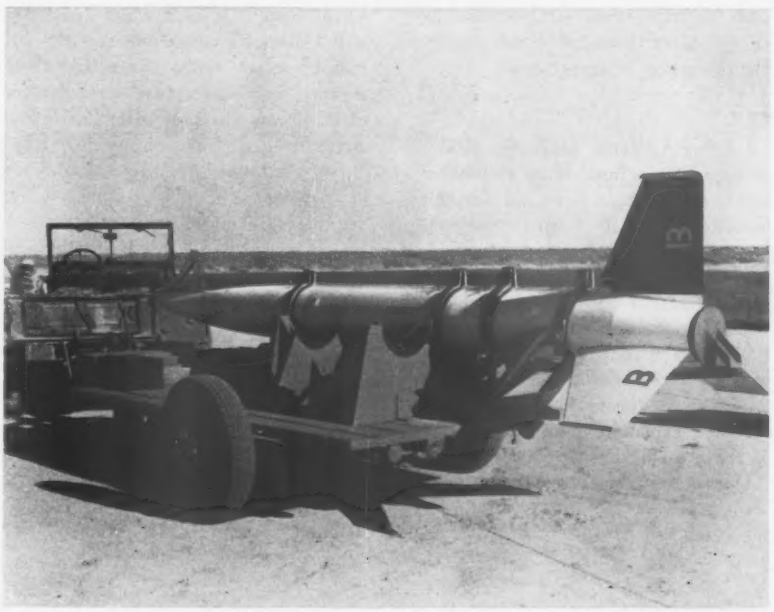
In March and April, 1949, a pioneering rocket-firing expedition was made jointly by the U. S. Navy and the Applied Physics Laboratory to the Central Pacific. Two Aerobees were successfully fired from the U.S.S. *Norton Sound* off the coast of Peru. New high-altitude records were set for the earth's southern hemisphere.

Far more importantly, it was conclusively shown that high-altitude rocket flights could successfully be conducted from a ship at sea—therefore, anywhere on the world's oceans. Significant new cosmic-ray and geomagnetic data were obtained.

A second such expedition was conducted in January, 1950 to the Gulf of Alaska. In spite of inclement weather, the firings were again successful.

In addition to shipboard firings, it is now easy to visualize overland expeditions with a portable launcher for firing Aerobees at any accessible place in the world.

Rocket exploration of the upper atmosphere has acquired new horizons, figuratively and literally.



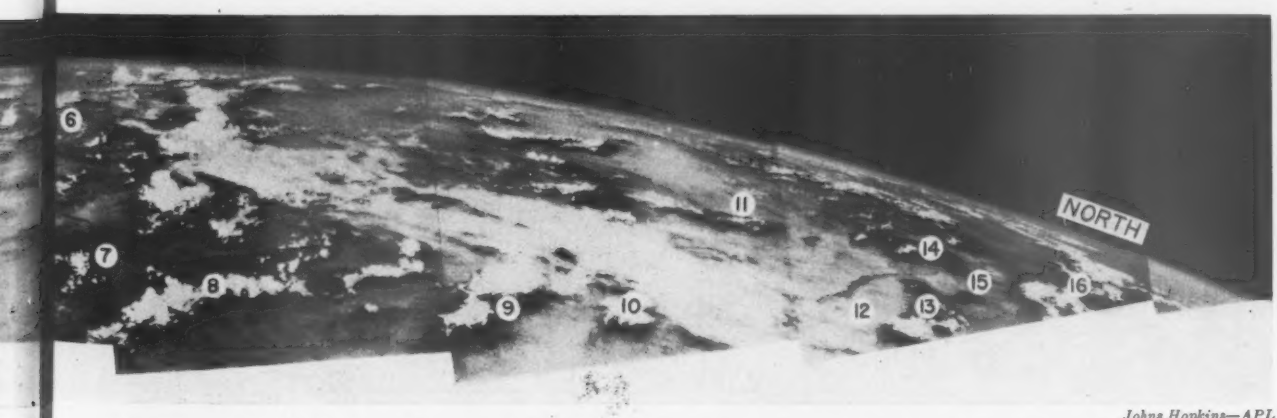
U. S. Navy Photograph

CLOSEUP VIEW OF AEROBEE shows its clean, slim lines. This one is being transported from hangar to launching site at the Army's White Sands Proving Ground.

THE ABSENCE of short-wavelength ultraviolet in the sunlight which reaches the earth has been mentioned earlier. It was demonstrated many years ago by some extremely ingenious sea-level experiments that one of the major absorbers of the near ultraviolet was ozone in the atmosphere.

Ozone is an unstable gas which can be generated from oxygen under special circumstances. Its presence in the atmosphere is of profound importance. It absorbs most of the actinic ultraviolet. Someone has remarked that without ozone in the atmosphere there would be only one race of humans on earth—the black race. Its powerful absorption gives rise to a warm layer in the high atmosphere, which is thought to have a marked influence on wide-scale weather conditions. Yet ozone is present in very minute quantity—the total amount in the atmosphere, if compressed to sea-level pressure (14.7 pounds per square inch), would occupy a spherical shell around the earth less than one-eight of an inch thick. The whole atmosphere, if similarly compressed, would be about five *miles* thick.

One Aerobee flight has been made by APL for the purpose of determining the manner in which ozone is distributed



Johns Hopkins—APL

tains (4), Gila River (5), San Carlos Reservoir (6), Mogollon Mountains (7), Mt. Taylor (11), Albuquerque, New Mexico (12), Sandia Mountains (13), Valle Grande Mountains (14), the Rio Grande (15), and the Sangre de Cristo Range (16). Perspective, of course, becomes distorted in a photograph at this angle. Rocket swung from side to side as automatic camera took pictures.

with altitude. Successful preliminary results have been obtained. Further flights are now being prepared.

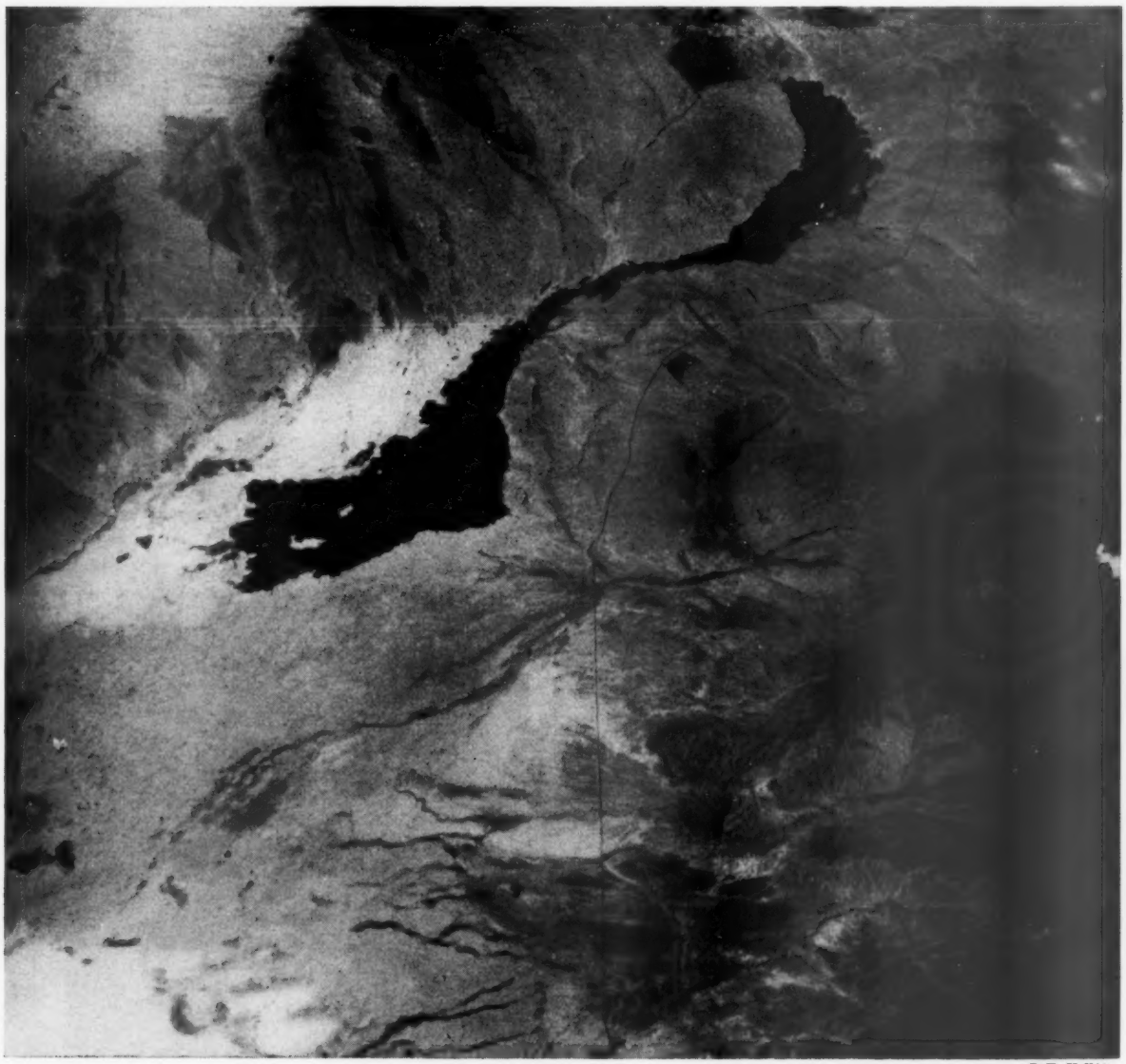
THE EARTH'S magnetic field is perhaps of less importance to mariners and surveyors than it was at one stage in history. But its origin remains unknown. Observers have, however, expended great effort in systematically recording and analyzing its variations. Strangely enough, plausible explanations have been proposed for the numerous small periodic and non-periodic variations in the field, even though no accepted explanation for the existence of the main field yet exists.

One of the periodic variations of the earth's magnetic field which has been well known for many years is the so-called solar daily variation. Over seventy years ago a possible mechanism of its origin was proposed. There was envisioned the generation of huge vortices of tens of thousands of amperes of current in the ionized layers of the atmosphere due to the tidal expansion and contraction of the atmosphere through the general magnetic field. This theory came to be known as the "dynamo theory." It was widely accepted on the basis of plausibility and on the basis of various agreements with observed features of the daily variation. Direct verification of the existence of the hypothesized current sheets has awaited the attainment of sufficient altitude.

In the March, 1949 Aerobee flights off the coast of Peru, sensitive magnetometers were carried to high altitude as a cooperative experiment with the Naval Ordnance Laboratory.

After nearly a year's work of reading and reducing the flight data and calibrations, it now seems certain that a current layer of the predicted magnitude does indeed exist. Its altitude is found to be about sixty miles and its thickness about five miles. Neither the altitude nor thickness has been predictable with any measure of certainty.

Again rockets are making possible important clarification of long-standing problems in the physics of the upper atmosphere.



C. T. Holliday

AN AEROBEE GOT THIS VIEW FROM SEVENTY MILES UP. NOTE ROADS, CITY, PEAKS, BLACK LAVA BED.

MEET LIZ WISEMAN

If it were not for one impairment, she would be a normal little girl. Here is what Hopkins doctors are doing to help her have a happy, healthy life.

Photographs for the Johns Hopkins Magazine by Robert M. Mottar

THE ENGAGING LITTLE GIRL above is Liz Wiseman. Liz will be four years old this fall. She is alert, responsive, and affectionate. She is healthy, too, except for one thing: Liz is profoundly deaf.

Liz's mother had German measles in her ninth week of pregnancy. Having read about the possible effects of this infection, Mrs. Wiseman was worried about her baby's health.

But when Liz was born, her physical development was found to be quite normal. Her mother felt a sense of deep relief. The German measles, it appeared, had left no bad effect.

Liz was a happy baby. When she was six to eight months old, she started to chatter and babble, as babies normally do.

At the age of fifteen months, Liz had a severe intestinal upset. There was a high fever. When it was over, Liz's normal chattering and babbling had stopped.

From then on, Liz did not try to do much talking. Her parents asked physicians in their home town about her hearing, but no conclusion was reached. Then, when Liz was two years old, a specialist found she was deaf.

A few months later, Liz came to the Hearing and Speech Center at the Harriet Lane Home of the Johns Hopkins Hospital. There was a program there, only newly developed (and supported by the Leland Stillman Foundation), for analyzing the hearing impairments of a small child.

First Liz was examined by an otologist in the department. He made a full examination of her ears, her nose, her throat. He found some trouble with her tonsils and adenoids, but not enough to account for Liz's profound hearing loss. He carefully took her case history: the German measles in pregnancy, the intestinal upset at fifteen months.

When the otologic examination was complete, Liz was given a battery of audiologic diagnostic tests. They were to find precisely how much hearing she had—and how she used it. They would evaluate how much and what kind of clinical and special work would be required for her development. To prepare for the tests, the Hopkins doctors

Text continued on Page 14
On next page, Liz's story in pictures

FIRST STEP on Liz's program at the Hearing and Speech Center is a complete otologic examination. Her ears, nose, and throat are carefully looked at.

Cows mots

NEXT LIZ IS TESTED in a soundproof room which looks like a radio studio. Doctor in adjoining control room (center picture) watches her react to loud sounds and odd noises which he transmits through loudspeaker at left. By carefully calibrating the volume of the sounds, he can determine approximately what Liz's hearing level is. Doctors fit their "sound effects" to the child they are testing. Liz grew up on a farm, so she was pleased to hear the doctor crow like a rooster, moo like a cow, and meow like the kittens she knew and loved back home. She responded (right) to low-frequency sounds at a level of sixty-five decibels below normal, and to speech at seventy decibels below normal.

nots meow in Liz's first test at Hopkins

—and she begins to feel at home.

Liz meets an awesome new machine. ri

new certainty to the tests of childre ea

HAVING JUDGED LIZ'S RESPONSE to their barnyard sound-cues (left), the Hearing and Speech Center staff next introduce their patient to what they call psychogalvanic skin-resistance audiometry. This is an objective test developed just two years ago at Hopkins. It can find a child's hearing threshold precisely without depending upon any subjective response from the patient, and thus is of great significance in testing the hearing of infants and small children like Liz. Skin-resistance measurements have been used for many years, but Drs. John E. Bordley and William G. Hardy (above) were the first to use it for testing the hearing of children. Now, proved by hundreds of tests, it is being adopted by many hospitals.

e. rings a

re earing.

HERE YOUNG LIZ, with electrodes taped to arm and leg, undergoes skin-resistance test. A loud tone is transmitted to Liz through earphone. Stimulated by it, her sweat glands cause a subtle change in the resistance of her skin to a minute electrical current. This skin-resistance change is amplified and recorded on moving drum by machine at right. It occurs only when Liz can "hear" the tone. Then the tone is gradually reduced in loudness. Doctors can immediately spot the point at which it becomes inaudible to her, because it no longer stimulates her sweat glands and the chart shows that no change in her skin resistance took place. This, beyond any doubts which might be present in a subjective test, is Liz's hearing threshold. At right, results of all tests are carefully explained to Liz's mother and a program for helping the little girl is mapped out.

NOW LIZ IS EMBARKED on a training program. Here, from Dr. Miriam D. Pauls, she learns vowel sounds, connecting them with words pictured on wall chart. Dr. Pauls exaggerates her pronunciation so Liz can see how each sound is formed and then try it herself. Liz studies her instructor's face muscles (see cover photo) to get better idea how to pronounce the words. She is an apt pupil.

Her trouble found, now Liz starts to learn.

watched Liz for a while in a play-situation. They observed some of the basic relationships between parent and child. Liz liked that; she was beginning to feel at home.

Then Liz underwent the first step in diagnostic testing: a general "work-up" in a soundproof room. Liz was seated in a chair in front of a loudspeaker. Through electronic equipment in a glass-windowed control room next door, odd noises and a variety of carefully-measured sounds came to Liz through the loudspeaker. (The staff at the Hearing and Speech Center had become expert sound-effects men; they could bark, crow, cluck, moo, or meow just like the animals on Liz's farm back home.) Liz's reactions to the sounds were studied closely through the glass window. When a child has enough hearing so that she has established some auditory "patterns," this stage of the work-up is centered on her ability to identify objects from sound-cues alone.

Having been brought up on a farm, Liz was much interested in animals, and a loud "Me-ouw" brought forth a delighted grin. Liz responded to low-frequency sounds at a level of sixty-five decibels below normal. She was aware of speech at seventy below.

THE NEXT STEP for Liz was pure-tone audiometry. This involved the careful measurement of the least possible loudness at which Liz could perceive test-tones across a range of six octaves.

Pure-tone audiometry is ordinarily a highly subjective test. It involves the close cooperation of the person being tested: he signals when he hears a test-tone. But infants and very young children like Liz have long posed a problem: they are too young to take part intelligently in complex tests like that.

An important new technique, however, had been developed at Johns Hopkins before Liz came for her tests, a technique which overcame this difficulty. It does not require any active participation on the part of the child. Many hundreds of tests, using this method, have been run; the technique has been established as a useful clinical tool. It is being adopted now in many medical centers.

It is a test which is objective, not subjective, made possible by the use of psychogalvanic skin-resistance audiometry. The basic idea of skin-resistance measurements has been known and used for many years; Dr. Curt Richter of Johns Hopkins had developed it extensively in his work in psychobiology. Dr. Richter's basic equipment, adapted to hearing-test techniques by Dr. John E. Bordley and Dr. William G. Hardy, is used in the audiometry process.

The general idea is this: when humans are stimulated in various ways, sweating occurs. This response to stimuli is conveyed through the sympathetic nervous system. Activity of the sweat glands reduces the skin's resistance to the passage of a minute electrical current. This change in skin resistance can be amplified and plotted electrically on a moving drum.

In order to use this method of observation in studying Liz's hearing, she was first conditioned—by means of a

light, painless, faradic shock—to respond to a standard audiometric sound. The sound—an auditory stimulus—came as a "warning signal" to Liz a few seconds before the electric shock was given; soon she was conditioned to develop skin-resistance changes following the auditory stimulus, *in anticipation* of the coming shock.

When conditioning was accomplished —when Liz did regularly show a change in skin resistance following the sound—the "searching tone" was gradually reduced in loudness until it reached a point where the child could hear it no longer. It was obvious when this threshold was reached, because when the tone was sounded, no skin-resistance change occurred—a sure, virtually infallible sign that Liz had not heard the tone. The responses could be plotted as a standard audiogram: a graph showing Liz's hearing level.

Liz was connected to a pick-up electrode and a shock electrode (taped to the hands or feet; it varies with the child being tested). The doctors made every effort to free her from restraint and keep her contented; they judiciously used lollipops and toys to aid and abet the clinical relationship. Liz was a particularly responsive child. She "listened" with considerable interest.

Liz's threshold for pure tones, as interpreted from her skin-resistance reactions, produced an audiogram which clearly indicated a severe, nerve-type hearing impairment. It was entirely consistent with her awareness of sounds in the soundproof room. The doctors established that she had useful hearing across the entire speech-hearing range, and that she should be trained with the use of amplification for the best results in speech and language development.

THE RESULTS of the various diagnostic findings were summarized for Liz's parents; a positive course of action in handling her disability was worked out. Often, naturally enough, parents have difficulty facing the facts about their child's disabilities. They are often badly confused about causes and effects

Continued on Page 31

LIZ IS INTENT as she learns to speak normally. Her teacher uses a microphone to communicate to Liz through headsets, which amplify sound greatly. Liz's parents have set up a twenty-four-hour a-day learning situation for her at home. She is progressing wonderfully, now uses a wearable hearing aid.

Edwin H. Perkins

Broadway Plans A Face-Lifting

By JOSEPH B. KELLY

AS HAS THAT of many similar institutions which serve large numbers of people daily in metropolitan areas, the growth of the Johns Hopkins Hospital and the University Schools of Medicine and of Hygiene and Public Health has been accompanied by a distressing deterioration of the surrounding neighborhood.

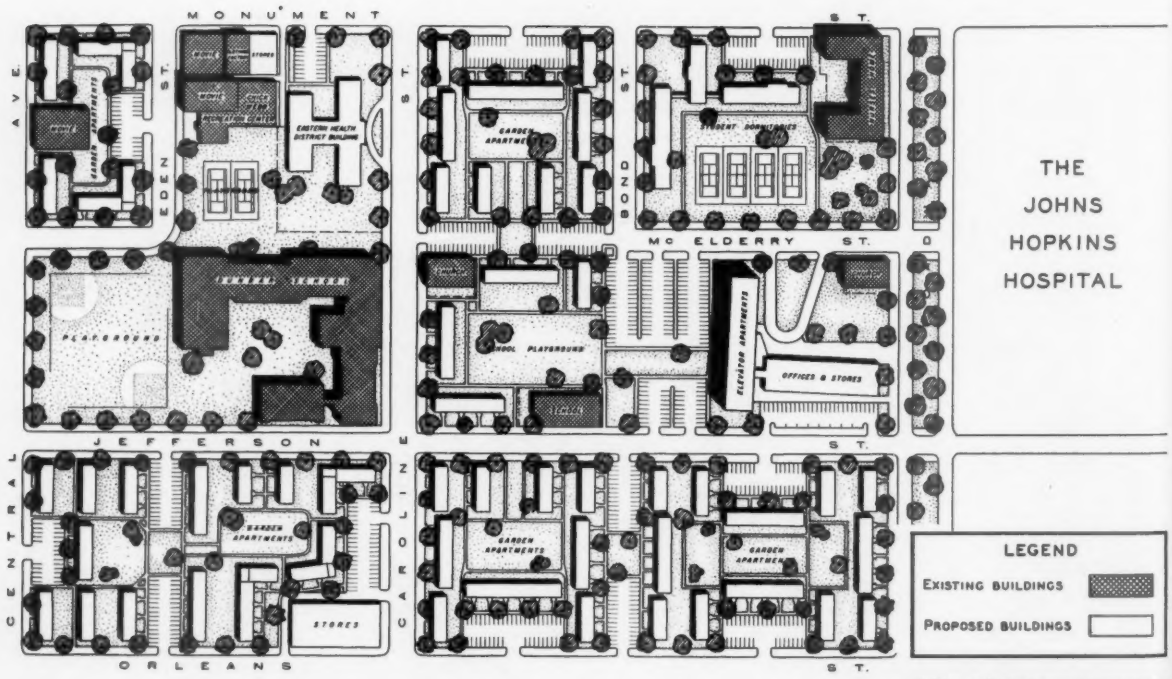
In recent years, particularly since the war, the situation has grown much worse. The problem of providing suitable housing in the vicinity for students, staff members and their families, patients, and visitors has reached the acute stage. Finding parking spaces for cars within a reasonable distance from the medical buildings is a daily scramble for staff and visitors alike. The problem of bringing about improvement of existing conditions has been one of serious concern to Hopkins authorities for some years—particularly as plans for future development of the medical facilities were considered.

Several years ago, the first steps were taken to solve it.

By special act of the Maryland legislature, establishment of the Baltimore Redevelopment Commission was

Continued on Page 32

MR. KELLY is on the staff of the Vice President of the Johns Hopkins Medical Institutions.



Baltimore Redevelopment Commission

NEIGHBORHOOD WEST OF HOPKINS HOSPITAL is scheduled for vast redevelopment soon. Map above shows plans for the area, including dormitories for medical students. At top is how much of the section looks today. Hospital dome is in background.

AGE OF DISCOVERY

The finding and exploration of a new world are traced in the John Work Garrett Library at Evergreen House.

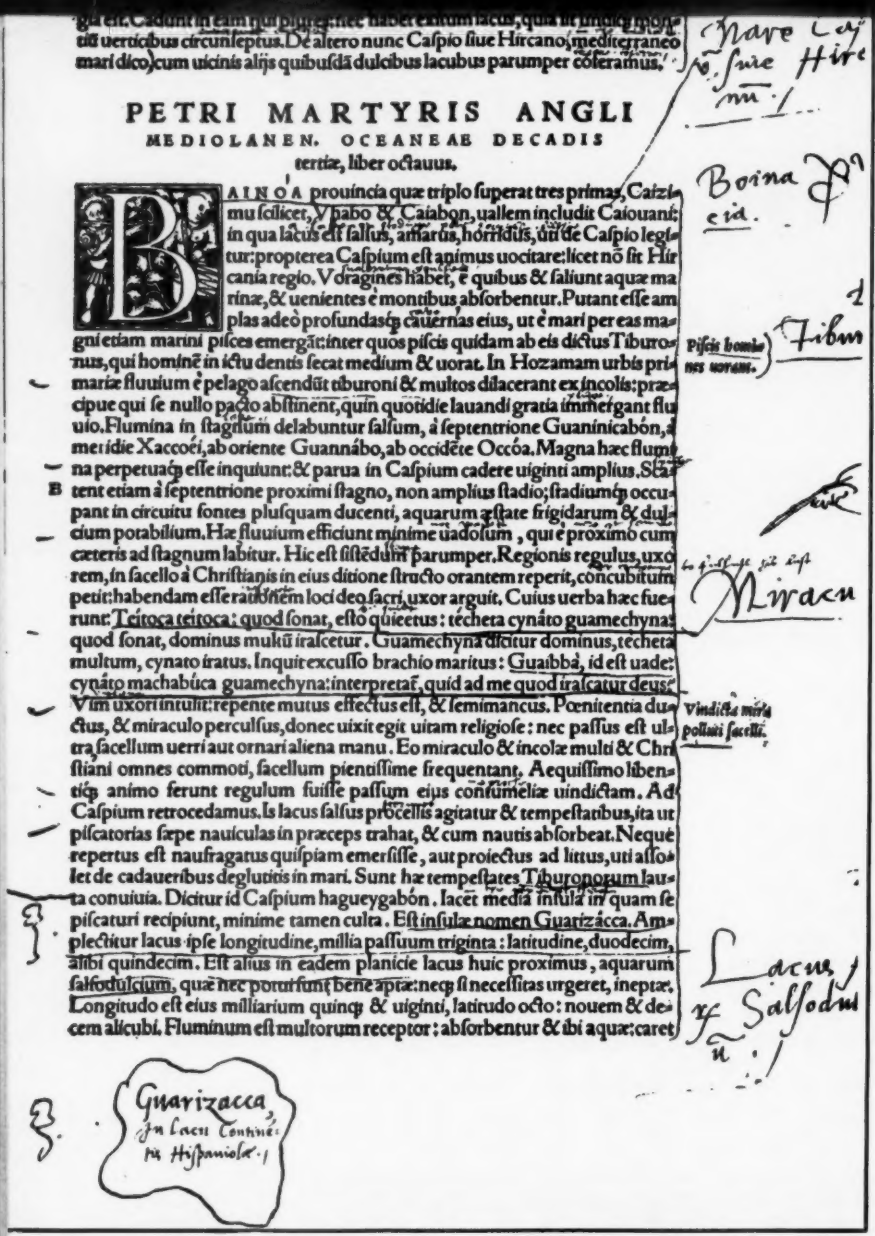
FOR FOUR GENERATIONS, members of the distinguished Garrett family of Baltimore have been collecting rare books. Today their vast and valuable collection, housed in the magnificent Garrett home "Evergreen House," is amazingly broad in its scope. Several years ago, upon the death of John Work Garrett, it was left to Johns Hopkins.

The material on these pages is a sampling of just one of the great collections in the John Work Garrett Library: that on the golden Age of Discovery. Here is a graphic record of how European man pushed back the horizons of his world—and of how he told his contemporaries of what he found. There are Columbus' letter announcing the discovery of islands in the "Indian Ocean" (*below*); reports by Peter Martyr, great historian of the discovery period; books and maps tracing the whole long story of the development of a new world. From them, one can catch more of the excitement and ardor of the exploration spirit than a thousand twentieth-century writers could convey.

Items from the Garrett collection were photographed for the Johns Hopkins Magazine by Blakeslee-Lane Studios

QVoniam ſuſceptę prouínciæ rem perfectã me conſecutũ fuiſſe: gratum tibí fore ſcio. Quas conſtituí exarare: quæ te vniuſcuíuſq; reí in hoc noſtro ıtínere geſtę ínuẽtęq; admoneãt. Tríceſimotercío díe poſtq̃ Gadíbus díſceſſí: ín mare Indícũ peruení: vbí plurímas Iuſulas ınnumerís habítatas homínibus reperí: quarũ omnium ꝓ fœlícíſſímo Rege noſtro: præconío celebrato / & vexillís extenſis: cõtradícente nemíne poſſeſſionẽ accepí. prímęq; earum: díuí Saluatorís nomẽ ímpoſuí.

COLUMBUS TELLS of his discovery of America in this letter, printed in 1494. It is illustrated with woodcuts, the first pictures of the new world and its inhabitants. Cut at top of this page shows Columbus landing on the island of Hispaniola, offering a jewelled cup to one group of savages as another flees in terror. Woodcuts were made by stay-at-home artists whose idea of what Indians looked like was obviously based more on fancy than on fact.



PETRI MARTYRIS ANGLI
MEDIOLANEN. OCEANEAE DECADIS
tertiæ, liber octauus.

BAINOA prouincia quæ triplo superat tres primas, Caizimu scilicet, Vhabo & Caiabon, uallem includit Caiouani: in qua lacus est salsus, amarus, horridus, uti de Caspio legitur: propterea Caspium est animus uocitare: licet nō sit Hircania regio. Voragines habet, è quibus & saliunt aquæ marinæ, & uenientes è montibus absorbentur. Putant esse amplas adeò profundasq; cauernas eius, ut è mari per eas magni etiam marini pisces emergāt: inter quos piscis quidam ab eis dictus Tiburonus, qui hominē in ictu dentis secat medium & uorat. In Hozamam urbis primariæ fluuium è pelago ascendūt tiburoni & multos dilacerant ex incolis: præcipue qui se nullo pacto abstinent, quin quotidie lauandi gratia immergant fluuio. Flumina in stagnum delabuntur salsum, à septentrione Guaninicabón, à meridie Xaccoéi, ab oriente Guannábo, ab occidēte Occóa. Magna hæc flumina perpetuaq; esse inquiunt: & parua in Caspium cadere uiginti amplius. Stant etiam à septentrione proximi stagno, non amplius stadio; stadiumq; occupant in circuitu fontes plusquam ducenti, aquarum æstate frigidarum & dulcium potabilium. Hæ fluuium efficiunt minime uadosum, qui è proximo cum cæteris ad stagnum labitur. Hic est sistēdum parumper. Regionis regulus uxorem, in sacello à Christianis in eius ditione structo orantem reperit, concubitum petit: habendam esse rationem loci deo sacri uxor arguit. Cuius uerba hæc fuerunt: Teitoca teitoca: quod sonat, esto quieetus: técheta cynáto guamechyna: quod sonat, dominus mukū iratcetur. Guamechyna dicitur dominus, techeta multum, cynato iratus. Inquit excusso brachio maritus: Guaibbá, id est uade: cynáto machabúca guamechyna: interpretatē, quid ad me quod iratcatur deus? Vim uxori intulit: repente mutus effectus est, & semimancus. Pœnitentia ductus, & miraculo perculsus, donec uixit egit uitam religiose: nec passus est ultra sacellum uerri aut ornari aliena manu. Eo miraculo & incolæ multi & Christiani omnes commoti, sacellum pientissime frequentant. Aequissimo libentiq; animo ferunt regulum fuisse passum eius cōsumeliæ uindictam. Ad Caspium retrocedamus. Is lacus salsus procellis agitatur & tempestatibus, ita ut piscatorias sæpe nauiculas in præceps trahat, & cum nautis absorbeat. Neque repertus est naufragatus quispiam emersisse, aut proiectus ad littus, uti assolet de cadaueribus deglutiis in mari. Sunt hæ tempestates Tiburonorum lauta conuiuia. Dicitur id Caspium hagueygabón. Iacet media insula in quam se piscaturi recipiunt, minime tamen culta. Est insulæ nomen Guarizácca. Amplectitur lacus ipse longitudine, millia passuum triginta: latitudine, duodecim, alibi quindecim. Est alius in eadem planicie lacus huic proximus, aquarum salsodulcium, quæ nec potui sunt bene aptæ: nec si necessitas urgeret, ineptæ. Longitudo est eius milliarium quinq; & uiginti, latitudo octo: nouem & decem alicubi. Fluminum est multorum receptor: absorbentur & ibi aquæ: caret

Peter Martyr was leading recorder of early discoveries.

MOST AUTHORITATIVE account of early explorations in America was given by Peter Martyr in his *Decades*, first published in 1511. In addition to the first edition and other rare copies, the John Work Garrett Library contains the personal copy of Richard Eden, who translated Martyr's work into English. Page above shows how Eden worked, making marginal notes and drawing rough maps of the areas described in Martyr's text.

THE JOHN WORK GARRETT LIBRARY has a rich collection of the works of Peter Martyr, the first historian of America.

Martyr, an Italian priest of noble birth, was in a peculiarly advantageous position to chronicle the early discoveries. He was tutor to the children of Ferdinand and Isabella and a member of the Council of the Indies. He knew many of the great explorers personally. From them he carefully gathered information about America and published it in his *Decades*, the most thorough and authoritative descriptions of the new world.

The library's fine Peter Martyr group includes the first edition of his account of the early voyages to America. It was published in 1511, just nineteen years after Columbus' first voyage, and contains one of the first printed maps of the new world. Another edition at Evergreen House has a rare map of the western hemisphere by Francis Gaulle. On it, the name "Virginia" appears for the first time.

The page reproduced above is from an unusually interesting copy at Evergreen House: the personal copy of Richard Eden, ancestor of the last proprietary governor of Maryland and of present-day Britain's Anthony Eden. Richard Eden translated the Martyr work into English and published it in 1555. His marginal notes, together with some rather fanciful maps based on passages in the Martyr text, are visible in the illustration on this page.

In the 1500's, exploration quickened to a feverish pace.

THE TEMPO of exploration quickened in the sixteenth century. As more and more explorers reported what they found in the new world, still others sailed west and east to open new areas to the European ken. The exploration fever was contagious—highly so.

Europe's appetite for information about the discoveries was enormous, and the continent's book and map publishers strained to meet the demand. The shelves at Evergreen House hold the cream of their efforts: a procession of maps, constantly revised to include new shorelines, new places that were found; books describing the natives, the flora, the climates of new lands.

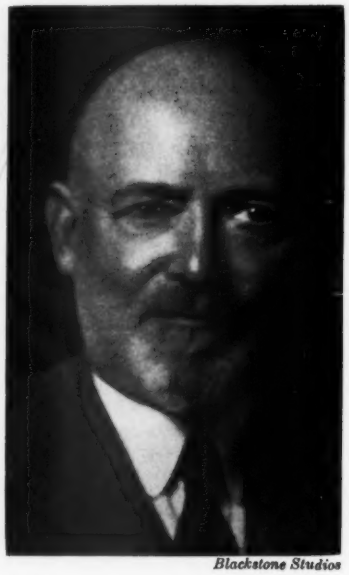
Thomas Hariot, an English historian and astronomer who went with Sir Richard Grenville's expedition to Virginia in 1585, is represented with his "Briefe and true report of the new found land of Virginia." John White, an artist who went on the voyage, illustrated it with detailed drawings (*see below*), and provided the "first map of Virginia." As Volume I of De Bry's *Great and Small Voyages* (*see below*), it was published in Latin, French, and German, as well as in English. Interest in the subject knew no nation's lines.

Translators and anthologists put the explorers' reports into useful forms. Richard Hakluyt made a great collection: *The Principall Navigations, Voiages, and Discoveries of the English Nation;* Evergreen House has the first issue of its first edition. Jan Huygen van Linschoten translated original Spanish and Portuguese reports. And Theodore De Bry of Frankfurt, inspired by Hakluyt, published the greatest series of them all: *The Great and Small Voyages.* Begun in 1590, De Bry's work was carried on by his family and eventually grew into twenty-seven volumes, printed in two languages. It is regarded as the leading contribution to present-day knowledge of discovery.

So it goes, into the seventeenth century: great works by José de Acosta, missionary in Peru from 1571 to 1576; by Sir Richard Hawkins, who "voiaged into the South Sea"; by Luke Fox, who tried to find the Northwest Passage in 1631; by John Exquemelin, who told of the "Bucaniers of America" and their deeds on the Spanish Main.

The John Work Garrett collection is a running story of exciting, daring times.

"SITTING AT MEATE" is how sixteenth-century artist John White titled this on-the-spot drawing of American Indians. White went on 1585 expedition to new world, produced fine series of pictures. In addition to this copy, the John Work Garrett Library has one tinted by a European artist. The colorist had never seen an ear of corn, and let his imagination run riot: the corn is striped like a barber pole. Text says Indians are "verye sober in their eatinge and trinkinge; very long lived because they do not oppress nature."



Blackstone Studios

The personality of John Work Garrett is reflected in his books at Evergreen House.

JOHN WORK GARRETT, who left Evergreen House and his library to Johns Hopkins, was fond of calling his collection a "library of four generations." His grandfather and his grandfather's father were collectors. But "Alas," Mr. Garrett once said, "of the first two of the four generations, the remainder is scanty indeed."

It was T. Harrison Garrett, his father, who Mr. Garrett said "made the library." The library is in large part a reflection of his tastes. He was a collector of prints, of coins, of autographs, of manuscripts; his collection of signatures of the signers of the Declaration of Independence was extensive, and his son completed it. He was "an ardent Confederate," and gathered thousands of Southern and Northern pamphlets about the Civil War.

In the library are early books in manuscript, some handsomely illuminated. There are samples of early printing—including a Chinese treatise block-printed in the Sung Dynasty before 1260 A.D. There are three Gutenberg items in the collection (one believed to be a trial sheet for the Gutenberg Bible). The group of incunabula—items printed before 1500—is extensive.

John Garrett was discriminating in his book-gathering. He did not acquire his collection helter-skelter; deep interest in several fields dictated his selection. There are his treasured Elephant Edition of Audubon and his fine Gould folios, reflecting his great interest in natural history. There are his collection of items on early Maryland and his addition of rare autographs to his father's Declaration of Independence group. There is the fine group on voyages of discovery, sampled on these pages.

The Large Library, housed in magnificent surroundings, was designed by Laurence H. Fowler. Evergreen House is on Baltimore's North Charles Street. It is a place of quiet grounds and handsome dignity. By Mr. Garrett's will, the house, the grounds, the library, and the art collections were left to Johns Hopkins. For the present they remain under the care of Mrs. Garrett and the trustees of Mr. Garrett's estate.

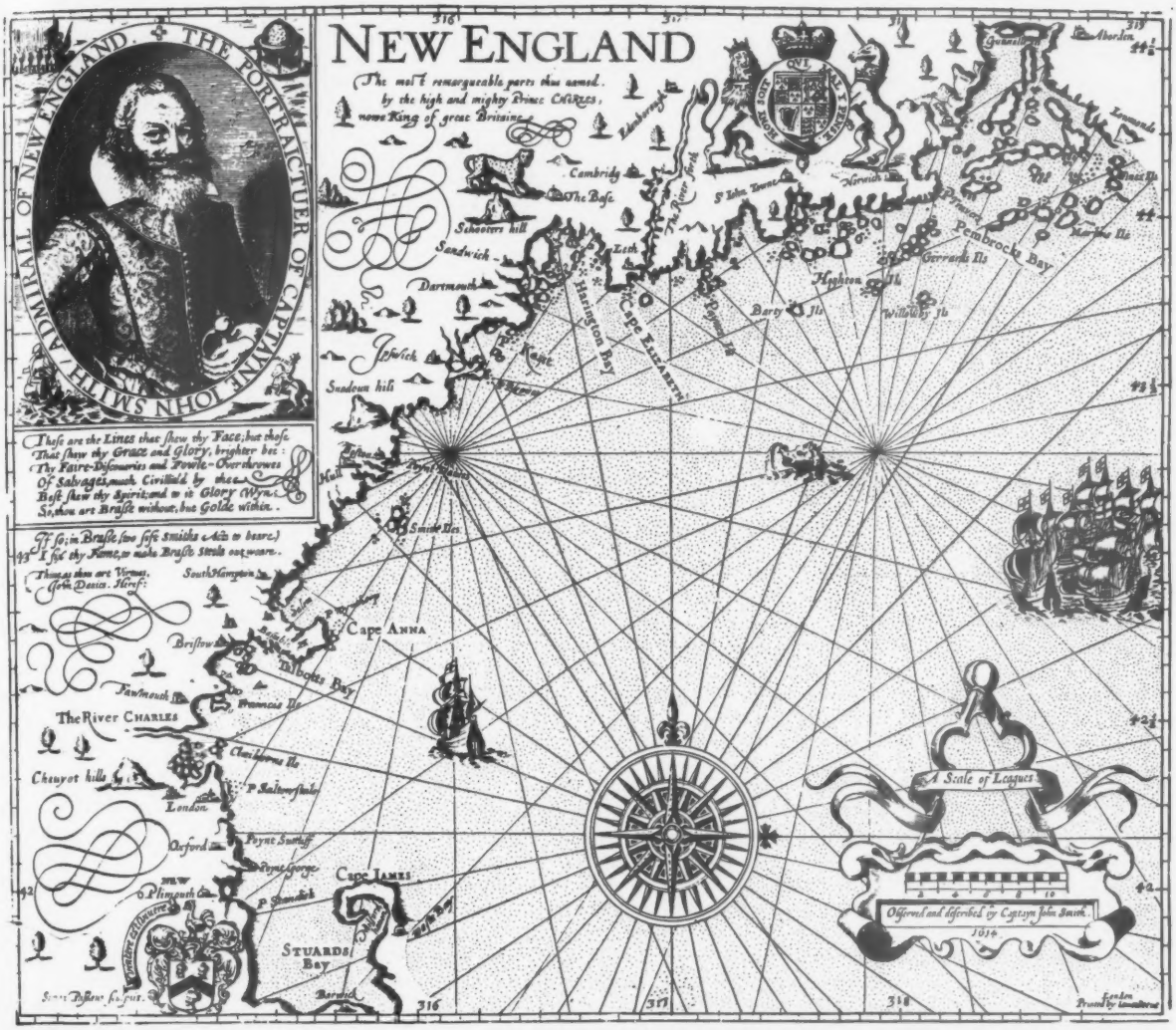
At Evergreen House, too, is a private theatre, the only one in America decorated by one of the greatest of European theatre designers, Leon Bakst.

But the heart of Evergreen is its books, and they, more personally than almost any other belongings which man can accumulate in his lifetime, reflect and project the personalities of their collectors. These books most surely do.

J. H. Schaefer

EVERGREEN HOUSE, built some 100 years ago, has nineteenth-century graciousness. It is a five-minute drive from the Johns Hopkins campus.

THE LARGE LIBRARY at Evergreen House contains the rare books in the Garrett collection. Above is one of its rooms, richly panelled and handsomely furnished, commanding view of gardens.



LIBRARY'S FINE MAP OF NEW ENGLAND BY CAPTAIN JOHN SMITH WAS PUBLISHED IN A 1631 VOLUME.

Library's map collection is outstanding.

THE PROGRESS of discovery is most easily traced on the maps at Evergreen House. Beginning with crude and highly imaginative sketches of shorelines, containing such products of wishful explorers' thinking as a Northwest Passage across America and the China Sea just on the western side of the Alleghenies (*see next page*), the collection moves forward with the explorers and shows their steady acquisition of new knowledge about America and what lay beyond.

By 1614, Captain John Smith's observations along America's east coast had produced the detailed map of New England printed above (it appears in the library's copy of a book called *Advertisements for the Unexperienced Planters of New England or Anywhere, or the Path-way to experience to erect a Plantation*).

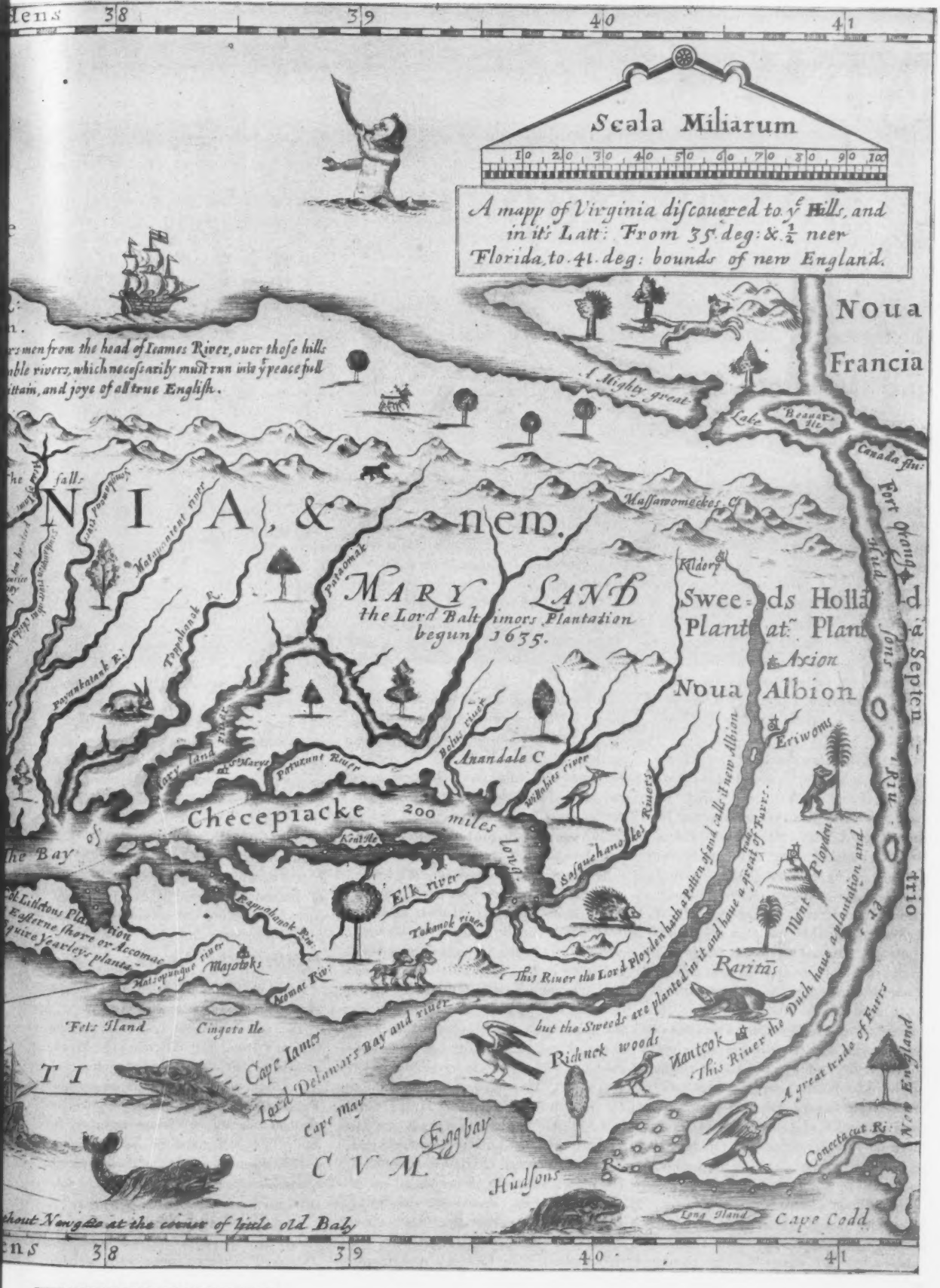
KOREA made one of its earliest appearances on this map. It is shown as an island to the left of Japan and bears the name "Core." Map appears in a copy of De Bry's famed *Indian Voyages*, Volume III.

Captain Smith was busy elsewhere, too. The John Work Garrett Library has his *Map of Virginia, with a Description of the Countrey* (1612); *The Generall Historie of Virginia, New-England, and the Summer Isles* (1624); *The True Travels, Adventures, and Observations in Europe, Asia, Affrica, and America* (1630).

And Smith was but one of many discoverers. In 1601 even Korea was appearing (though as an island) on maps of Asia (*left*). Little of the world was untouched by Europe's chartmakers as they enlarged Europe's concept of the world.

America was a thin land between two seas in this seventeenth century map.

THIS MAP shows how America looked to the English in the middle 1600's. The Sea of China is just over the Alleghenies, and the Hudson River provides a convenient shortcut to it. The rivers and peninsulas along the east coast are recognizable; but as the mapmakers moved inland, their knowledge of the land grew hazier and hazier until it gave way to sheer imagination. The sixteenth and seventeenth century maps of America at Evergreen House range from one of the earliest, in Ptolemy, to accurate ones like John Smith's on the preceding page.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This River the Lord Ployden hath a Patten of and calls it new Albion
This River the Duch haue a plantation and
A great trade of Furrs
but the Sweeds are planted in it and haue a great trade of Furrs
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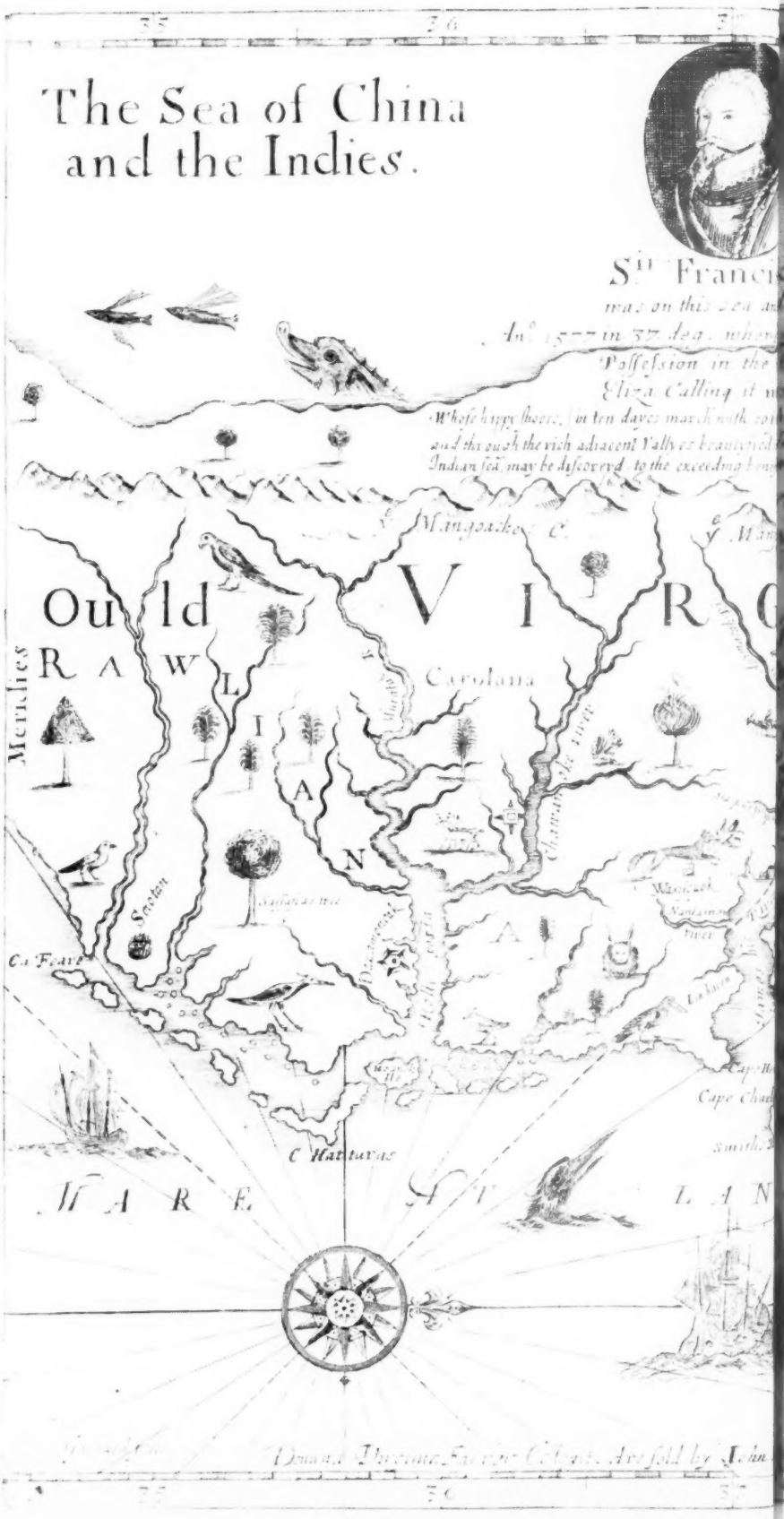

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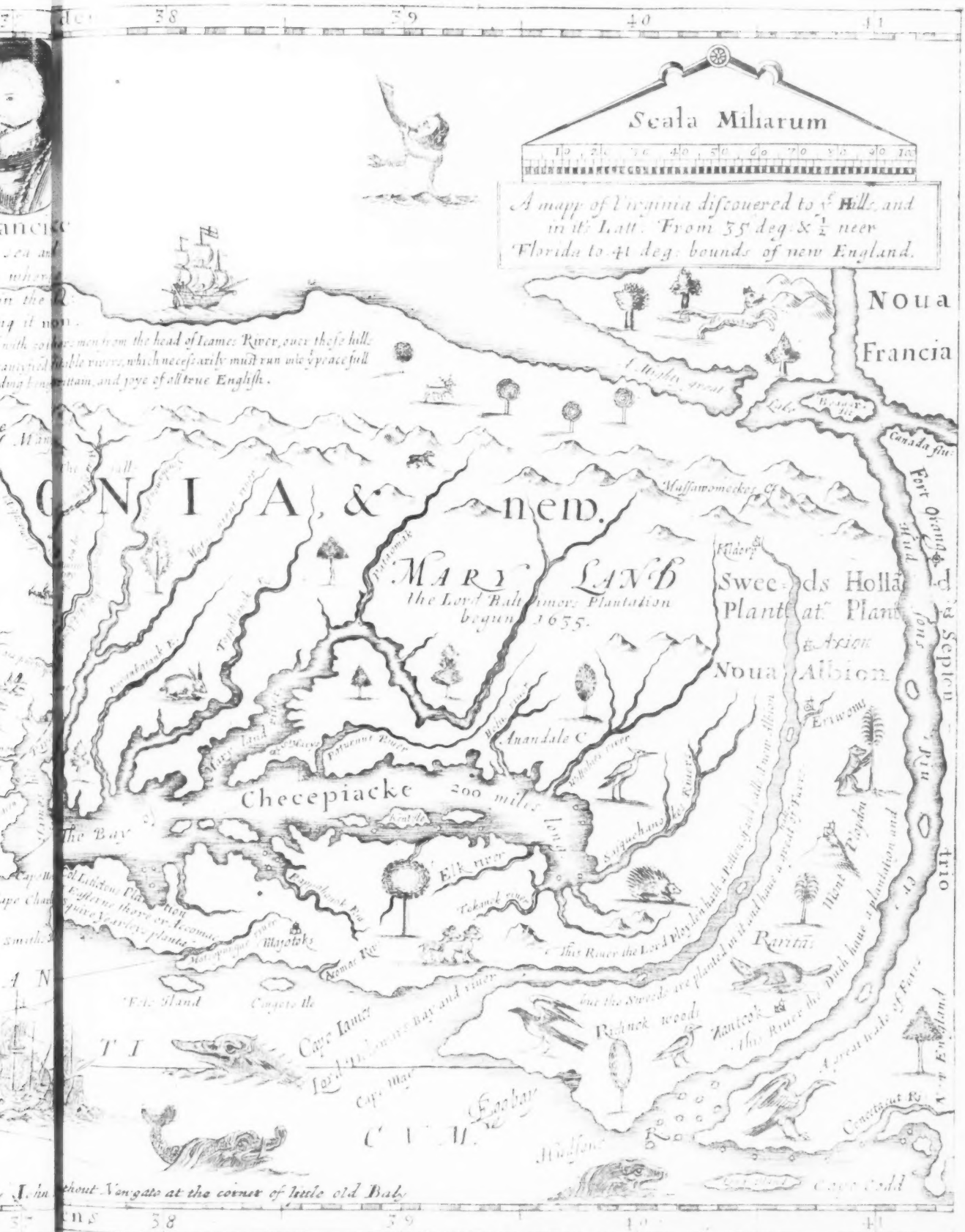
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Mount Pisgah
Cape Charles
Cape Henry
Cape Cod
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Delaware R:
Connecticut R:
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Virginia

NEWS at Johns Hopkins

A digest of developments at the University and Hospital in recent weeks

THE UNIVERSITY, after a month's lull between the closing of Summer Session and the beginning of the regular academic year, came back to life last month. Undergraduates began arriving on September 18, when freshmen started a week-long orientation program designed to acquaint them with Johns Hopkins and Baltimore before they entered their first classes. On September 28, instruction was scheduled to begin in several University divisions, with classes in others starting on October 3.

Behind the immediate activity at the University, in nearly everyone's mind, loomed events—and the threat of events—on the world scene. The war in Korea had brought changes to Johns Hopkins already: some members of the staff at the University and Hospital had departed for military service; many students were receiving messages from their draft boards and reserve units. There was renewed interest in last year's grades as draft policy toward college students was announced to be deferment-minded if the students stood in the upper half of their classes. The ROTC organization at Homewood was the object of a freshman interest that might not have been nearly so great in a "normal" year. There was discussion in medical circles of the urgent need for more doctors announced by the armed services, and of how best the need might be met.

Preliminary figures from the treasurer indicated that the University had run around $305,000 into the red in the year that ended last June 30. The Fourth Roll Call of the Annual Alumni Fund got under way (*see below*). And a Baltimore boy, answering the biology department's call for fireflies (for which the department, needing them for a research project, offered twenty-five cents a hundred), earned himself a record pile of quarters: he turned in more than 27,000 of the bugs.

Dog Vote

Few issues have stirred as much public debate in Baltimore (and in other medical centers) as the use of stray dogs in medical research. Next month, Baltimoreans will vote on the question—and both from the standpoint of the medical profession and from that of the antivivisectionists in the city, a good deal depends on the outcome.

The controversy has been long brewing (see *The Johns Hopkins Magazine*, May, 1950). Last December, after a bitter fight, the Baltimore City Council passed an ordinance providing that Baltimore's two medical schools, its hospitals, and its other qualified institutions could use for research some of the stray dogs picked up by the city's dogcatchers. Previously, when dogcatching had been under direction of the SPCA, the dogs were unavailable for such work. Unclaimed strays were put to death at the city pound.

Since then, the antivivisectionists (led by the Maryland Anti-Vivisection Society and aided by some members of the SPCA) have been busy circulating petitions demanding that the whole question be submitted to the voters in a referendum. They formed a new organization called the Citizen's Committee for the Dog Referendum and secured enough signatures to get a place on next month's municipal ballot.

Their proposal is that an amendment be added to Baltimore's City Charter providing for the establishment of a "Humane Commission" with investigative and supervisory powers over the sale, use, and disposition of animals. It prohibits the turning over of impounded animals to medical institutions after next January 1.

The "Humane Commission" proposal is an interesting one. Its opponents charge it is "loaded," and likely to deceive many voters if they are not careful. The commission would consist of five members appointed by the mayor but actually named by five organizations: Johns Hopkins, the University of Maryland, the Maryland Society for the Prevention of Cruelty to Animals, the Maryland Anti-Vivisection Society, and the Animal Protective League. Three of the five organizations are out-and-out antivivisectionist groups; the views of the Hopkins and Maryland representatives would scarcely have a chance. But the doctors feel that many voters, unless warned, may be misled by the Hopkins and Maryland men's "presence" on the proposed commission, thinking it would give them a voice in its affairs. Actually, they point out, the commission would be one-sided—"packed" from the start.

To combat the proposal, doctors and lay leaders have been forced to form a group of their own: the Maryland Society for Medical Research. It will lay the case for research before the Baltimore voting public.

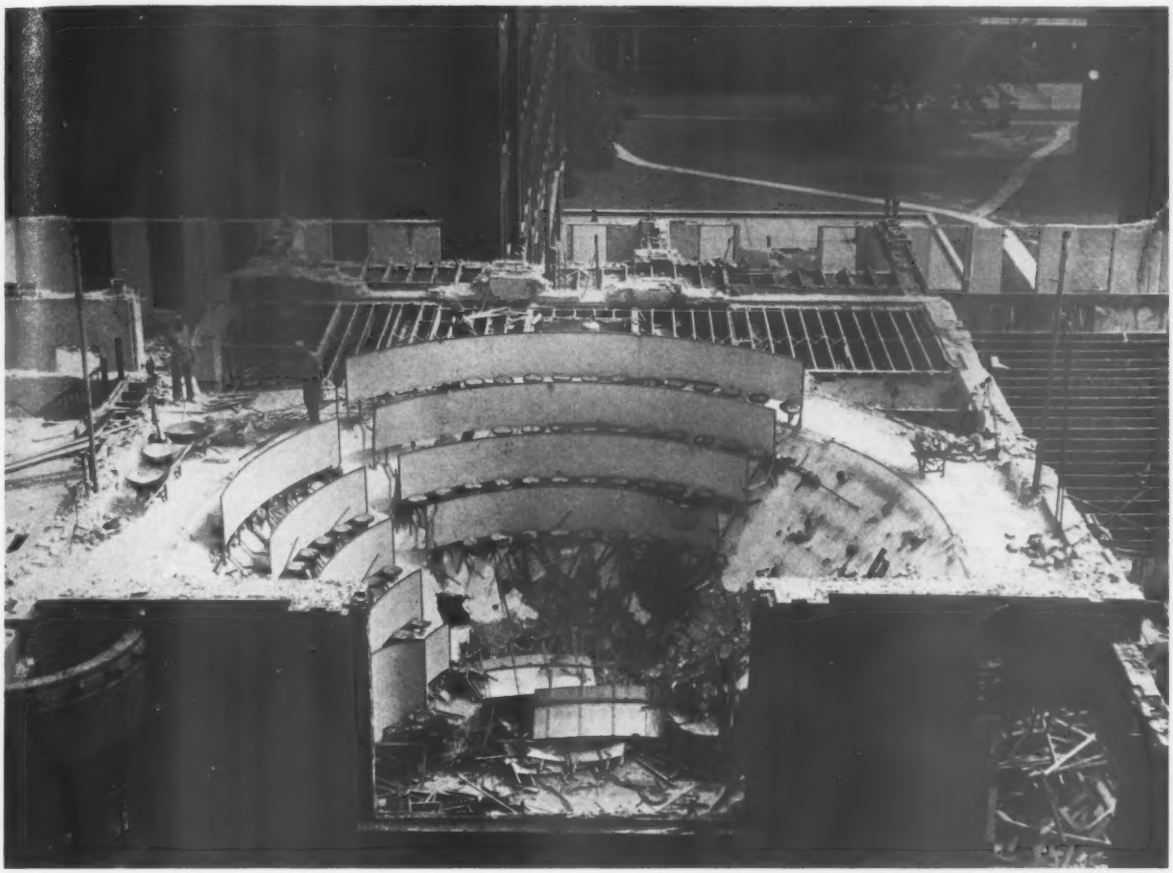
Between now and November 7, the battle should be a warm one. It is also of immense concern to everyone, not just in Baltimore but wherever medical progress is important.

P-32: Cold Sleuth

Another salient has been made in the battle line against the cold virus.

The announcement came during the summer from Dr. Thomas G. Ward, associate professor of bacteriology at the Hopkins School of Hygiene and Public Health. By using radioactive phosphorus and a Geiger counter, he said, bacteriologists are now able to detect the presence of the common-cold virus known as "WW" within the laboratory.

Last winter (see *The Johns Hopkins Magazine*, April) Dr. Ward and Dr. Donald F. Proctor successfully isolated



The Baltimore Sun

THE OLD SURGICAL BUILDING at Johns Hopkins has passed from the scene. Workmen have demolished it (above, the huge surgical amphitheatre is torn apart) to make way for the erection of a new fourteen-story modern hospital structure. The old building, opened in 1904 and hailed at the time as one of the most modern in the world, was the scene of many great surgical innovations—among them the introduction of rubber gloves to operating rooms, brought about during Dr. William S. Halsted's office as surgeon-in-chief of the Hospital and professor of surgery at the School of Medicine. A list of surgeons and students who lectured, studied, and demonstrated in the old building reads like a Who's Who of American medicine. The new building will have enlarged accident-room quarters, additional out-patient facilities, and laboratories, and will provide for expansion of the present operating suite.

the common-cold virus while working with volunteers from among prisoners in the Maryland State Reformatory for Males. Human volunteers are difficult to find, however; the new method provides a comparatively easy and accurate test.

Three groups of chick embryos were used in discovering the new test. A control group was inoculated with mumps virus, one remained uninfected, and a third received the cold virus. Each virus-group was inoculated with radioactive phosphorus, the isotope P-32, a process which Dr. Ward and his associates first learned during a thirteen-week stay at Oak Ridge.

The use of P-32 enables the bacteriologists to use a Geiger counter to study the virus' rate of growth in the embryo and the location of the virus as it passes from one culture to another.

A Geiger counter instantly spots radioactivity; and since the amount of radioactivity increases with the growth of the virus, the counter can measure the pace of the cold virus under a given set of favorable or unfavorable conditions.

As a check on his test, Dr. Ward removed material from the sick eggs, took out the radioactive phosphorus, and gave the remnant to prison volunteers. Each time the check was made, the volunteers came down with colds—further proof that the cold virus was still present.

Commencement, 1950

On June 13 an audience of 3,500 gathered on the lawn before Gilman Hall at Homewood to witness the seventy-fourth commencement of the Johns Hopkins University. Under a bright sun 914 students received diplomas from President Bronk. Twenty-two different degrees were conferred, including 540 to the largest undergraduate group in the University's history.

Hamilton Owens, editor-in-chief of the Baltimore *Sunpapers*, addressed the graduates on the subject of "The University and the Community."

Four honorary degrees were conferred on Hopkins graduates. A Doctor of Laws degree was given to Mr. Owens, who received his B.A. in 1909.

Samuel Claggett Chew, B.A. '09, Ph.D. '13, was awarded an honorary Doctor of Letters degree. Dr. Chew is professor of English Literature at Bryn Mawr College.

Edward L. Moreland, B.A. '05, executive vice-president of Massachusetts Institute of Technology, received an honorary Doctor of Engineering degree.

Merle A. Tuve, Ph.D. '26, fac. '24–'26, was awarded an honorary Doctor

of Science degree. He is director of the Department of Terrestrial Magnetism, Carnegie Institution, Washington, and was director of Hopkins' Applied Physics Laboratory during the war.

Modernization in Anatomy

When Dr. Allan L. Grafflin was appointed to the professorship of anatomy in 1948, the University undertook the modernization of a group of research laboratories on the Department of Anatomy's second floor. The work showed that the building itself was structurally sound, eminently adaptable to the department's needs for many years.

After consideration of the problem by the Trustees, modernization of the remaining student and research laboratories and animal quarters was begun. Recently the work has been brought to completion, with results that are even more successful than had been anticipated.

Roll Call No. 4

Early last month, a letter went into the mail to every Hopkins alumnus. Its writer was a fellow member of his Hopkins class or department, announcing that the Fourth Roll Call of the Annual Alumni Fund was now under way. (It had been moved to autumn this year, instead of occurring earlier as in the past, to avoid conflicting with summer vacations and, even more important, to enable alumni to have a copy of the University's new financial report, not available until well after the fiscal year's close on June 30.)

The thought underlying the Roll Call idea is this: that if alumni will contribute to the University's support each year, a firm foundation of income will be established which today, more than ever, is sorely needed by Johns Hopkins. Large capital gifts—sums which can be invested and made to bring a yearly yield—are becoming fewer and fewer; there simply are not as many large fortunes in America today as there once were. So independent, privately supported institutions desperately need the continuing support of *many* interested persons; they no longer can depend solely upon gifts from the wealthy few.

Dr. J. H. Fitzgerald Dunning, who was chairman of the Roll Call last year, is again serving in that capacity for 1950. Some 150 alumni are working as class and departmental agents. For "the voluntary maintenance of the University by free individuals," they looked to more than 20,000 colleagues last month, for they knew the need was great.

The Baltimore News-Post

HOPKINS PHYSICISTS, seeking to measure the contents of the earth's lower atmosphere, this summer pressed into service a giant advertising searchlight, borrowed from Baltimore auto dealer B. A. Wacek. Under supervision of Dr. John D. Strong, William Benesch, a graduate student in the Hopkins physics department, conducted the experiments. One of Mr. Wacek's twin 850,000,000-candlepower lights was beamed (right) at a window in Rowland Hall on the Hopkins campus, where Mr. Benesch, using mirrors, a lead telluride cell, a diffraction grating, and a recording graph (above), obtained important measurements of gases present in the atmosphere close to the earth. The project was sponsored by the Navy in the interest of pure science; the Army cooperated, too, by sending a searchlight expert from Fort Belvoir to help with the tests.

The Faculty

● *Among members of the Board of Trustees*, Walter S. Gifford has been awarded an honorary degree of Doctor of Commercial Science by New York University.

D. Luke Hopkins has been reelected president of the Community Chest of Baltimore, Inc.

Roy B. White was awarded an honorary degree of Doctor of Laws by Marietta College.

● *In the Faculty of Philosophy*, Marshall S. Turner, Jr. has been named chairman of the department of athletics.

Don Cameron Allen has been appointed Sir William Osler Professor of English Literature. He has been granted a leave of absence for the academic year 1950–51 to lecture at Oxford University.

John H. Wellington has been appointed visiting professor of geography for the first term of the coming academic year.

Heinz von Schuching has been promoted to assistant professor of German.

Donald E. Kerr has been promoted to assistant professor of physics.

Charles W. E. Eriksen has been promoted to assistant professor of psychology.

William F. Albright, W. W. Spence Professor of Semitic Languages, has been awarded an honorary degree of Doctor of Hebrew Literature by the College of Jewish Studies.

● *In the School of Medicine*, Alan C. Woods, William Holland Wilmer Professor of Ophthalmology, has been granted an honorary fellowship by the Royal College of Surgeons of Edinburgh. Dr. Woods is one of only three ophthalmologists and the first American ophthalmologist to receive this fellowship in the 450-year history of the university.

Francis F. Schwentker, professor of pediatrics, has received an honorary degree of Doctor of Science from Union College.

Helen Brooke Taussig, associate professor of pediatrics, received an honorary degree of Doctor of Laws from Hood College. She was also awarded an honorary degree of Doctor of Science by the Woman's College of the University of North Carolina.

Amos R. Koontz, assistant professor of surgery, has been awarded an honor-

William B. Sinton

ary Doctor of Laws degree by the College of William and Mary.

The following appointments have been made: Charles R. Austrian, associate professor emeritus, medicine; George A. Stewart, assistant professor emeritus, surgery; Richard Lord Riley, associate professor, medicine; Edward Lucas Chambers, assistant professor, anatomy; Lytt I. Gardner, assistant professor, pediatrics.

The following have been promoted to associate professorships: Medicine: Warde B. Allan, A. Murray Fisher, Charles W. Wainwright; Obstetrics: Eleanor Delfs; Pathology: William H. Carnes; Psychiatry: Barbara J. Betz; Psychiatry and Physiology: Jerzy E. Rose; Radiology: Robert N. Cooley, David M. Gould; Surgery: C. Rollins Hanlon, H. William Scott, Jr.

The following have been promoted to assistant professorships: Dermatology: Leon Ginsburg; Medicine: Richard J. Bing, John T. Howard; Obstetrics: George W. Anderson; Psychiatry: Leonard J. Gallant; Neurological Surgery: Herbert C. Johnson; Orthopedic Surgery: George O. Eaton; Urology: Willard E. Goodwin.

● *At the School of Hygiene*, George W. Corner, professor of embryology, has been awarded an honorary degree of

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DELMARVA PENINSULA ALUMNI have elected Herbert A. Lubs, Ph.D. of Wilmington, as their president. Above, left to right, are Dr. Lubs, President Detlev W. Bronk, and Dr. Walter E. Lawson, of Wilmington, president of the Johns Hopkins Chemistry Alumni, at the Delmarva Association's organizational meeting.

Doctor of Science by Oxford University.

Anna M. Baetjer, assistant professor of physiology, has been chosen president of the American Industrial Hygiene Association.

The following new appointments have been made:

Richard Lord Riley, associate professor, environmental medicine; George Albert Silver, assistant professor, public health administration; Benjamin Pasamanick, assistant professor, public health administration; Kenneth Levie Zierler, assistant professor, environmental medicine.

● *In the School of Engineering*, Michel Saad, assistant professor of civil engineering, has been granted a year's leave to go to Syria where he will act as adviser in developing the civil engineering department at the National University of Syria.

● *At the Institute for Cooperative Research*, Dr. William B. Burford, III has been named director. He succeeds Dr. Lawrence Hafstad, now with the Atomic Energy Commission, who will continue his appointment as professor of physics on leave of absence.

● *At the Applied Physics Laboratory*, the following men have been appointed to the staff: John B. Garrison, formerly instructor in physics at the University of Chicago; John J. Sopka, formerly assistant professor of mathematics at Tufts College; Gwynne B. Swartz, formerly assistant professor of physics at the University of Maryland; Robert P. Rich, Ph.D. '50, Johns Hopkins University; William Liben, formerly at the Brookhaven National Laboratory of the Atomic Energy Commission.

Recent Books

WILLIAM F. ALBRIGHT, W. W. Spence Professor of Semitic Languages: section in *The Jews: Their History, Culture, and Religion.*

JEROME BLUM, B.A. '33, Ph.D. '47 (Hist.) *Noble Landowners and Agriculture in Austria*, 1815–1848.

GEORGE BOAS, professor of philosophy: *Wingless Pegasus.*

ISABEL B. BURGER, B.S. '24: *Creative Play Acting: Learning Through Drama.*

HUNTINGTON CAIRNS, lecturer in criticism: *Legal Philosophy from Plato to Hegel.*

ANDREW HILL CLARK, fac. '43–'44: *Invasion of New Zealand by People, Plants, and Animals.*

ALSOPH H. CORWIN, professor of chemistry: *Compounds with Pyrrole Rings.*

ROY M. DORCUS, B.A. '22, M.A. '24, Ph.D. '25: *Handbook of Employee Selection.*

GEORGE HEBERTON EVANS, professor of political economy: *Basic Economics.*

EDWARD H. HUME, lecturer in the history of medicine: *Doctors Courageous.*

JOHN JAMIESON, g. '29–'31: *Books for the Army.*

R. B. KERSHNER, Ph.D.'37, A.P.L. (and L. R. Wilcox): *Anatomy of Mathematics.*

WILLIAM H. KILPATRICK, g. '91–'92, '95–'96: *Modern Education: Its Proper Work.*

OWEN LATTIMORE, director of the Walter Hines Page School of International Relations: *Ordeal by Slander.*

C. F. PAYNE, g. '37–'38, (and A. H. Bergerich): translation of *Una Vida Bajo la Tirania.*

V. P. SOKOLOFF, lecturer in the geography of soils (and H. E. Hawkes): translation of *Selected Russian Papers on Geochemical Prospecting for Ores.*

CRAIG THOMPSON, instructor in political science: *Police State.*

Alumni Meetings

As vacation season ended, Johns Hopkins alumni clubs across the country last month began announcing plans for the coming year.

Pittsburgh alumni will hold a luncheon on Saturday, November 18 at the Pitt Faculty Club, Cathedral of Learning, at 12:15, after which they'll attend the Pitt-Michigan State football game. Reservations (lunch, $1.50; game, $3.50) may be made through Mrs. M. R. J. Wyllie, Cedar Run Road, R.F.D. 2, Allison Park, Pa.

Johns Hopkins chemistry alumni who attended the American Chemistry Society meeting in Chicago last month met on September 5 at the Stevens Hotel. President Walter E. Lawson of the group presided, and the organization's honorary bookshelf was presented to Harry N. Holmes, Ph.D. '07, retired professor of chemistry at Oberlin College.

At the organizational meeting of alumni living in the Delmarva Peninsula area, held at the Du Pont Country Club in Wilmington, Herbert A. Lubs, Ph.D. '14, was elected chairman of the Delmarva Peninsula Alumni Association. J. D. Blackwell, Ph.D. '29; Judson G. Dimling, '30; William W. Finney, II, B.A. '38; William D. Noble, M.D. '18; and Henry V. P. Wilson, Jr., M.D. '18, were elected vice chairmen; and Elinor D. Hartnell, M.A. '45, Ph.D. '48, was elected secretary-treasurer.

Mr. Dimling was chairman for arrangements for the meeting and toastmaster at the dinner, at which President Detlev W. Bronk spoke. Nearly seventy alumni attended.

Georgia alumni have elected Walter R. Holmes, M.D. '13, fac. '16–'17, as president; Marvin Harris, Ph.D. '30, vice president; and Charles E. Dowman, M.D. '34, secretary-treasurer.

Alumni Notes

(*Names are listed in order of receipt of Hopkins degrees.*)

William C. Coker, Ph.D. '01, who for thirty-six years headed the botany department at the University of North Carolina, has been honored by the naming of a building after him at Coker College. Dr. Coker is the son of Major James Lide Coker, who founded Coker College in 1908.

George Hoyt Whipple, M.D. '05, LL.D. (hon.) '47, Nobel prize winner and dean of the University of Rochester Medical School, has received an honorary doctorate of laws from the University of Rochester.

Allen W. Freeman, M.D. '05, professor emeritus of public health administration, has received the Doctor of Science degree from the University of Richmond.

Philip B. Perlman, arts '08–'09, United States Solicitor General, has been honored by President Truman for winning all the cases he argued before the Supreme Court in the last term—a record never before equaled by any Solicitor General.

S. Francis Howard, Ph.D. '12, has received the honorary Doctor of Science degree from Norwich University.

Lee Y. Davidheiser, Ph.D. '18, chairman of the department of chemistry at Wagner College who retired in June, was honored with the degree of Doctor of Science at Wagner's commencement exercises.

Hugh J. Morgan, M.D. '18, has been elected president of the Association of American Physicians.

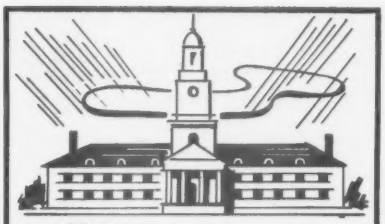
Wilder Penfield, M.D. '18, has been elected president of the American Neurological Association.

Charles S. Sydnor, Ph.D. '23 (Hist.), professor of history at Duke University, has been appointed to a distinguished Oxford University professorship for the academic year 1950–51. It is a post reserved for outstanding American historians.

George S. Mitchell, Ph.D. '26 (Pol. Econ.), was commencement speaker at Tuskegee.

Father Albert H. Poetker, S.J., Ph.D. '26 (Physics), Fel. by C. '26–'27, professor of physics at Xavier, has received the honorary D.Sc. degree from Wayne University.

Fuller Albright, Asst. Med. '27–'28,



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has received the 1950 Joseph Goldberger Award in Clinical Nutrition.

The Rev. Huber F. Klemme, B.A. '29, has received the honorary degree of Doctor of Divinity from Heidelberg College.

John D. Rettaliata, B.E. '32, Dr. Eng. '36, has been named vice president of the American Society of Mechanical Engineers.

Dr. Henry E. Sigerist, director of the Institute of the History of Medicine '32–'47, is the first recipient of the William H. Welch Medal of the American Association of the History of Medicine.

Deaths

(Dates are 1950, unless otherwise noted.)

H. Clay Armstrong, g. '88-'90 (Hist.), June 7.

Charles Baetjer, Hospital trustee since 1933, vice president until resignation in 1947, president of Harriet Lane Home board of managers; July 28.

Lucy W. Ball, B.S. '32, February 28.

Stella Bamberger, B.S. '27, g. '29–30 (Educ.), Ed. '31–'33, July 3.

James T. Barrett, g. '99–'02 (Physics), May 17.

Harvey Bassler, Ph.D. '13 (Geol.), Fel. by C. '13–'14, '15–'19 (Geol.), March 14.

William Wills Bradford 3d, Eng. '18–'19, May 26.

Trigant Burrow, Med. Spec. '01–'02, g. '02–'03 (Engl.), Ph.D. '09 (Psychol.), Med. Fac. '07–'09, '10–'27, May 24.

John Ambrose Clark Busby, '15–'19, January 5, 1945.

Ignatius Joseph Cruchley, C.P.H. '28, May 20, 1949.

Mary Augusta Dellone, B.S. '22, M.A. '29 (Educ.), g. '30–'31 (Educ.), August 20.

Miriam Dunn, M.D. '28, June 5.

Edward Dorsey Ellis, Arts '86–'87, June 22.

Geza Fabinyi, Hunterian Fel. in Surg., '30–'31, January 1.

Helen Elliott Gans, B.S. '27, August 3.

Lee D. Greif, '25–'27, August 22.

Henry Draper Gump, Arts '89–'91, November 17, 1949.

William Persson Hall, Ph.D. '36 (Chem.), June 7.

Margaret Webster Higginbotham, Sc.D. in Hyg. '37, January 8.

Philip Williams Howard, B.A. '25, August 22.

Francis Le Baron Jenney, g. '90–'91 (Pathol.), July 3, 1949.

Walter Robert Johnson, '42, January 2, 1948.

John James Keohane, Arts '20–'21, June 4, 1944.

Preston Kyes, M.D. '00, December 27, 1949.

Abraham J. Levy, B.A. '23, M.A. '24, Ph.D. '25 (Sem.), August 26, 1949.

Samuel Negley Loose, g. '00–'01 (Biol.), August 15, 1946.

Joao Avelar Maia de Loureiro, C.P.H. '36–'37, Dr. P. H. '37–'38, November 8, 1949.

James Lee Love, g. '84–'85 (Math.), May 6.

Arthur W. Machen, B.A. '96, May 27.

Lu Knowles Maxey, Med. '00–'02, March 17, 1943.

Roger Bower McKahan, Med. '11–'13, August 20, 1947.

John William Meehan, Dr. P. H. '22, May 28, 1949.

Frederick W. Meiser, Arts '18–'21, May 18.

Howard Stephen Miller, Med. '12–'14, September 6, 1943.

William Hammond Milton, g. '95–'96 (Hist.), June 26, 1946.

Joseph H. Moore, Ph.D. '03 (Physics), March 15, 1949.

William Anthony Mulherin, g. '96–'97, April 19, 1945.

Walter Creigh Preston, Ph.D. '23 (Chem.), June 12.

John Ransom, assistant director of the Hospital from 1930 to 1941 and 1942 to 1945; on May 18.

Roland LeRoy Rupp, g. '29–'30 (Pol. Econ.), March 17, 1944.

William Freeman Snow, Lec., Sch. Hyg. '20–'26, June 12.

Henry Philip Straus, B.A. '02, Ph.D. '05 (Chem.), June 2.

Irving John Straus, pre-med. '84–'86, January 14.

James S. Thayer, ge. '48–'49 (Mech.), June 21.

George Richard Trott, Ph.D. '34 (Math.), Instr. '34–'35, July 8.

Albert James Underhill, B.A. '97, M.D. '01, March 16.

I. Chandler Walker, A.B. '05, M.D. '09, June 17.

Francis M. Walters, Sc.D. in Hyg. '26, instructor in Biochem. Hyg., '26–'31, August 16.

Edward McColgan Walzl, M.A. '34, Ph.D. '35 (Zool.), g. '35–'36 (Zool.), M.D. '42, Associate Professor of Laryngology and Otology, School of Medicine; August 10.

John Ryan Washburn, g. '27–'32, '35–'36, '47–'48 (Rom. Lang.), May 31.

MEET LIZ WISEMAN

Continued from Page 15

and what to do about them; the subject is highly complex.

Often there are symptoms which can be treated medically; such treatment of course, must be carried out as the first step in case-handling. For nerve-type hearing impairment, however—Liz's type—there is no general treatment. Once the facts are known, the basic need is to face them and to work with the child through a carefully planned program to insure his well-rounded development.

This may involve clinical work in audiology, or special education as an adjunct to regular education, or special education in institutional circumstances. When hearing is impaired, every possible means must be used to stimulate speech and language development. The earlier it can be started, the better the results: every child is at his optimum for learning speech and language during the years from two to five. This is the time to begin special work with the child whose hearing is impaired.

THE HOPKINS DOCTORS spend twice as much time, typically, with parents as with the child. Much of the most beneficial work, they feel, is done not with formal teaching, but at home with intelligent parental insight.

Parents must learn how speech and language develop, how to make use of every opportunity to translate the child's interests into meaningful language. And as modern electronic developments have made possible the perfection of much-improved methods of diagnosis, so, too, can modern amplification—headsets and hearing aids—be employed as an important adjunct to this language-learning.

Liz's parents were alert to the possibilities. They laid out a twenty-four-hour-a-day learning situation. And Liz has made remarkable strides. Her vocabulary is developing well, and she is very much a part of the communicative situation in her daily life. The methods and early steps of this training were demonstrated to the parents, and there is continuing consultation as Liz progresses. She has graduated from using headsets, and is now using a wearable hearing aid.

Liz, the Hopkins doctors think, is on her way to a happy, normal life.

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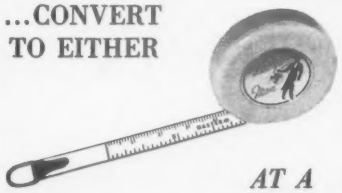

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The 156-EM is beautifully cased in a choice of Red, Blue or Yellow Tenite... smooth, neat, compact. Mail the coupon with your name and address, enclosing only $1.10 for a really convenient measuring instrument. Satisfaction guaranteed.

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Please send the rule by return mail.

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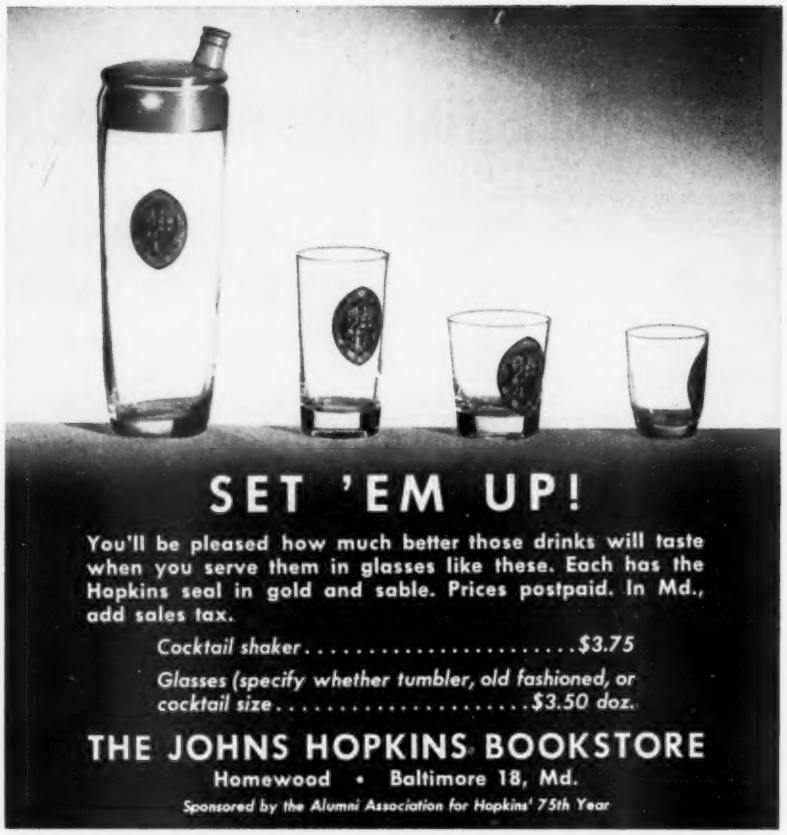
SET 'EM UP!
You'll be pleased how much better those drinks will taste when you serve them in glasses like these. Each has the Hopkins seal in gold and sable. Prices postpaid. In Md., add sales tax.
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BROADWAY'S FACE-LIFTING

Continued from Page 16

authorized. It was to promote the interest of private builders and investors in rebuilding deteriorated areas. The commission was made up of five unpaid members appointed by Baltimore's mayor with City Council approval. Redevelopment projects were limited to areas which have been found, after careful study by the City Planning Commission, to be "slums," "blighted," or "arrested."

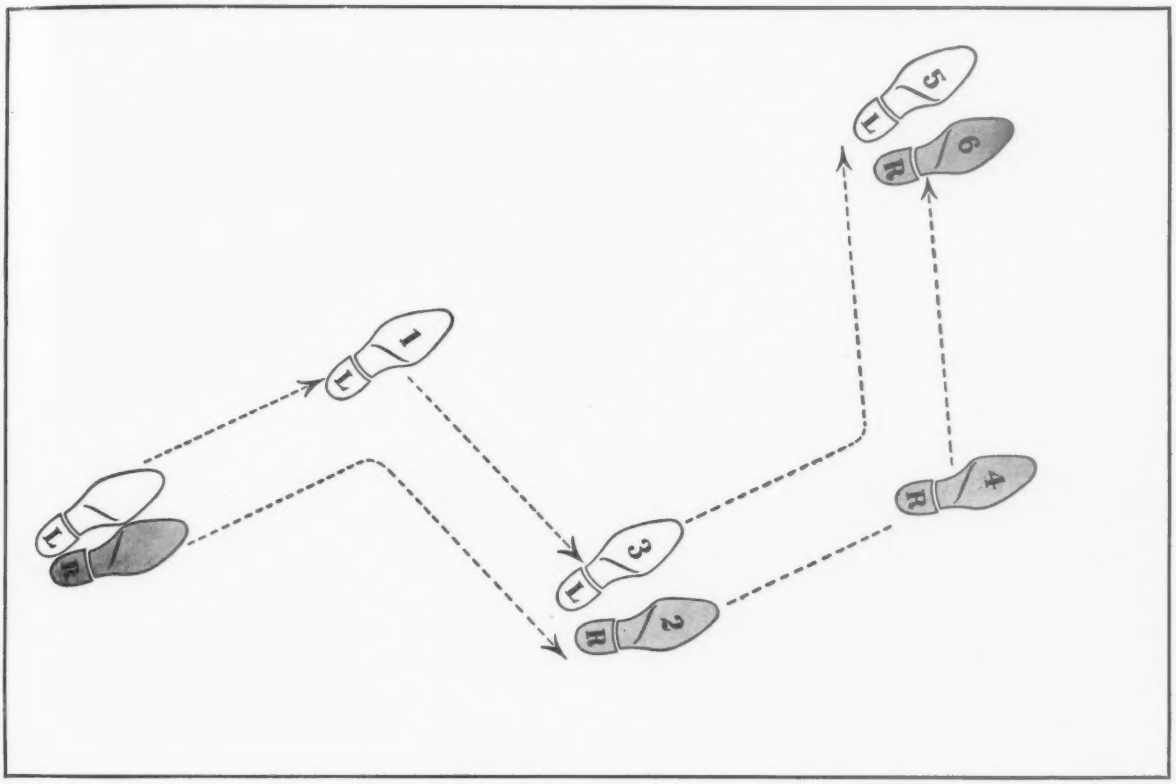
From the very start, the Hopkins institutions worked closely with the city planners, the Redevelopment Commission, and private contractors. And recently the plans were announced: Baltimore's first redevelopment project, a cooperative venture between government and private enterprise, has been approved for the immediate vicinity of the Johns Hopkins Medical Institutions.

The project will cover a nine-block area facing on the west side of Broadway, directly opposite the main Hospital entrance. Its completion will see crowded, dilapidated, and unsanitary structures replaced by modern garden apartments, stores, student dormitories, a hotel, and an office building for physicians.

The Redevelopment Commission's function is to acquire the property through bargaining or condemnation proceedings, clear the land, and make available such sites through sale or lease to private contractors who agree to undertake improvements in accordance with approved plans. The projects will be financed by a five-million-dollar city bond issue, approved by the voters in 1948, and a two-to-one matching by Federal funds which were made available for redevelopment purposes under the Housing Act of 1949.

The Hopkins plans are moving rapidly. They are being directed by the Medical Planning and Development Committee, consisting of the Vice President of the University and Hospital, chairman; the Dean of the Medical Faculty; the Director of the School of Hygiene and Public Health; and the Director of the Hospital.

It is estimated that it will cost $3,600,000 to acquire the property of the East Baltimore project and to clear the land in the designated area. Private capital will invest more than six million dollars to rebuild.



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